University of Alberta

Three Essays on Corporate Control in Canada

by

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Canada

DEDICATION

To my family

ABSTRACT

This dissertation comprises three essays related to corporate governance issues in Canada. The first essay (with Randall Morck, Michael Percy and Bernard Yeung) reviews the business history of Canada over the past four centuries, reports the evolution of ownership and control of largest Canadian corporations, and identifies key factors that are related to the rise and fall of control pyramid groups. After examining institutional factors such as financial markets, inheritance taxes and openness, the essay concludes that the control pyramidal structure is likely to be associated with rent seeking and corruption element rooted in Canadian mercantilism.

The second essay (with Randall Morck and Bernard Yeung) investigates the relationship between the importance of family pyramids, financial development and economic growth. After controlling for other macro factors (such as higher education and innovation), the essay concludes that though during times when family pyramids became more important, Canada tend to suffer from slow economic growth and low level of financial development, there is no statistically significant evidence supporting the argument that pyramidal structure retards growth.

The third essay reviews the ultimate ownership and control structure of Canadian corporations. The essay reports that pyramidal structure features separation of control rights from cash flow rights, with an average ownership-to-control ratio of 0.55 for family-controlled pyramid groups. It also examines the relationship between pyramidal structures and firm-level performance measures. After controlling for self-selection bias, firm-specific characteristics and industry effects, the essay reports that pyramidal structure tends to be associated with poor firm performance, but the relationship is insignificant.

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CHAPTER 1

INTRODUCTION

Since the time of Berle and Means (1932), the standard approach is to view corporate governance as a system to overcome incentive issues between professional managers (agents) and dispersed shareholders (principals). If the contracts between the principals and the agents are not perfectly efficient, professional managers may have a lot of discretion as to what to do with firms' resources. The classic principal-agent problems include things such as transfer pricing, and entrenchment of incompetent managers. Agency problems of this kind are typical for firms of the United States.

In Canada, at least in the 1980s and early 1990s, the general practice from both policymakers and academia is draw upon work done in the US whenever corporate governance issues are analyzed. Considering the close economic ties and social factors shared across the border, one may naturally assume that Canada and the US must have the same set of corporate governance problems. This assumption, however, is not true in all aspects. In one important dimension, how firms are owned and controlled, the resemblance between Canada and the US is not so clear.

In the US, most of large corporations are owned by thousands of diffused shareholders and they trust their corporations with professional managers. In Canada, some corporations are widely held, just the same as their US counter parts. But many other corporations have controlling shareholders. Some controlling shareholders, especially wealthy families, control a large number of firms using pyramidal structure (i.e. control pyramids), which allows them to extract private benefits of control at the expense of thousands of small, outside shareholders.

As a matter of fact, Canada is not alone when it comes to concentrated ownership and control. As argued in La Porta et al. (1999), while the "arm's-length" system prevails in the US and the UK, corporate governance in continental Europe and Asian-Pacific region all share a similar "insider" system as Canada. The main governance issues in countries of "insider" system are not related to the classical Merle and Means agency problem, but rather to the conflicts between inside controlling shareholders and the outside diffused shareholders.

This thesis includes three essays. With both historical and cross-sectional evidence, this thesis addresses some of the corporate governance issues related to control pyramids, especially family-controlled pyramids, in Canada. In particular, I investigate the relationships between control pyramids and Canadian corporations' performance, and between control pyramids and Canada's economic growth.

Chapter 2 presents a detailed descriptive analysis of the ownership structure in corporate Canada over the 20th century. A long panel of corporate ownership data, stretching back to 1902, shows that the Canadian corporate sector began the century with a predominance of large pyramidal corporate groups controlled by wealthy families or individuals, and relatively few widely held firms. By the middle of the century, widely held firms had become predominant. However, from the 1970s on, there has been a marked resurgence of pyramid groups controlled by wealthy families and individuals, corresponding to a large decline in the prevalence of widely held firms. Institutional factors underlying this resurgence are shown to have antecedents deep in the country's colonial past. The early and mid-twentieth century were periods of ascendant economic liberalism, featuring a well developed stock market, solidified shareholder rights, increasing competition, and a shrinking role of government. These events all favored the profusion of large freestanding wide held firms. Events in the latter decades of the century encouraged government intervention in the economy for laudable political reasons and high ideals. However, Canada's mercantilist roots, never fully eradicated, found this expanded public sector fertile ground. Morck and Yeung (2004) argue that family controlled corporate groups are more effective political rent seekers than freestanding widely held firms. Consistent with this, the final decades of the century saw a marked resurgence of corporate groups.

Chapter 3 analyzes the relationship between financial development, economic growth, and the importance of family-controlled pyramids. In this chapter, we first examine the relationship between finance and growth, controlling for other macro variables including education, research and development, trade openness and government efficiency. Consistent with previous studies (e.g. King and Levine. 1993), we find that development of financial markets has a strong, positive causal effect on measures of economic growth. Next, we relate the importance of family pyramids to development of financial markets, and then to economic growth. We do not find statistically significant evidence that firms controlled by family pyramids rely more on internal capital markets rather than financing available through external stock markets or banks. Empirical evidence also suggests that, though in the presence of more family pyramids Canada tend to have suffered from low economic growth and slow development of financial markets, the tendency is not statistically significant.

Chapter 4 examines the relationship between a firm's control structure and measures of its performance. I find that more than one half of my sample firms in 1994 have controlling shareholders owning at least 20 percent of the voting shares. These controlling shareholders are wealthy individuals or families, government agencies, or other widely held corporations. In about 25 percent of the sample firms, the controlling shareholder employs a pyramidal structure. I find discrepancies between ownership rights and control rights within Canadian control pyramids. The cash flow to control rights ratio for typical firms in family-controlled pyramids is about 0.55, while this ratio for the other two types of pyramids is close to 1. I analyze the economic impact of pyramidal structures on firm performance. On average, pyramid firms tend to have lower accounting returns and pay more dividends than their widely held counterparts. However, when firm-level variables and industry effects are controlled for, performance measures are not statistically different between the two types of firms. Empirical results also show that pyramid group firms (especially family-controlled ones) closer to the bottom of their group tend to perform worse than firms closer to the group's apex in terms of both accounting returns and valuation. But again, the results are not statistically strong enough to support the "tunneling" hypothesis proposed by Johnson et al. (2000).

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CHAPTER 2

A HISTORY OF CORPORATE OWNERSHIP IN CANADA[1]

I. Introduction

At the beginning of the 20th century, large pyramidal corporate groups, controlled by wealthy families or individuals, dominated the large corporate sector, as in modern continental European countries. Over several decades, a large stock market, high taxes on inherited income, a sound institutional environment, and capital account openness accompany the rise of widely held firms. At mid-century, the Canadian large corporate sector was primarily freestanding widely held firms, as in the modern large corporate sectors of the United States and United Kingdom. Then, in the last third of the century, a series of institutional changes took place. These include a more bank-based financial system, a sharp abatement in taxes on large estates, a likely rise in the value of superior rent seeking skills, and foreign investment restrictions. These were accompanied by a decline in the importance of freestanding widely held firms and a commensurate rise in the prevalence of family pyramid groups.

The reasons for the relative decline in importance of Canada's stock market as compared to its banking system in the last decades of the century are unclear. The introduction of a capital gains tax at the onset of a period of high inflation may have been factors; but the stock market did not recover its prior level of importance after inflation abated.

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[1] A version of this chapter, co-authored with Randall Morck, Michael Percy and Bernard Yeung, has been accepted for publication in *The History of Corporate Governance around the World: Family Business Groups to Professional Managers*, ed. Randall K. Morck. University of Chicago Press, Fall 2005.

The advent of the capital gains tax accompanied the end of succession taxes. After 1972, inherited income became tax exempt. Capital gains taxes were theoretically due on the decedent's assets at death. But the realization of capital gains could be postponed two generations through family trusts, structures viable only for very large estates. Several large family corporate groups were clearly broken into freestanding widely held firms to pay succession taxes, so the succession tax clearly accounts, in part at least, for the rise of the widely held firm.

The last third of the century actually saw much more profound transformations of public finances. Corporate taxes rose, and became intricately complicated, filled with implicit subsidies and intricate incentives and penalties. A proliferation of agencies administered a vast array of subsidies directly and through regional or industrial development funds. In a comprehensive study of Canadian public finances, Savoie (1990) concludes that "Especially since the early 1960s … in certain areas of the country at least, there is a government subsidy available for virtually every type of commercial activity. He goes on to quote *Canadian Business* thus: "Some firms are in the happy position of being able to employ staff or consultants whose sole function is to sniff out all the juicy morsels the politicians and policy makers throw in the public trough."

Corporate groups are a response to a weak institutional environment. One version of this hypothesis, developed by Khanna and Palepu (2000, 2001, 2002), proposes that corporate groups are a second best solution in economies whose product, labor, and capital markets are corrupt or inefficient. Substantial evidence supports this explanation in emerging economies. A second version of this hypothesis, proposed by Morck and Yeung (2004), holds that family controlled corporate groups have superior political rent seeking skills. Political rent-seeking, corporate investment in political influence, is commonplace in most countries, and usually legal. Family groups' most important advantages include: Groups can act more discretely than freestanding firms, for one group firm can invest in influencing a politician while another, perhaps privately held, collects the reward. Family firms can better invest in influence now to reap subsidies in the distant future. Widely held firms, in contrast, change CEOs every few years, and so require a faster payback. Thus, as political influence became an increasingly important determinant of financial success in the last decades of the century, family controlled group firms eclipsed freestanding widely held firms.

Finally, this rise of interventionism also entailed restrictions on foreign investment. Nationalist politicians, seeking to safeguard Canadian control of major corporations, perhaps encouraged family groups to serve as white knights. In some sectors, notably energy and cultural industries, this was overt – locking in future subsidies and tax advantages. In others, the rewards may have been more indirect.

This heightened importance of political influence, and the nationalist overtones surrounding it, have resounding echoes through Canada's economic history. Jean Baptiste Colbert, the intellectual father of French Mercantilism, owned Canada and used the colony as a laboratory for mercantilist experiments. Colonial Canada featured state subsidized iron works, ship building, canals, brick making, shoe making, beer making, wool production, mining, lumbering, eel packing, sea oil, and cod salting, among many others. In general, these were owned by the colonial political elite (and Colbert), and subsidized by the French government. The British conquerors, appreciating the benefits of this system to the colonial elite (now themselves), preserved it. British North America repeatedly bankrupted itself subsidizing all manner of canal and railway projects owned, directly or indirectly, by colonial politicians. Canadian corporate investment continued in this vein long after independence, almost to the twentieth century. A series of Liberal politicians either eschewing such ventures completely or focused on a single grand project at a time. Business-government relations were also largely monopolized by one very powerful politician, C.D. Howe, for several decades at the middle of the century. This probably eroded the value of superior political rent-seeking ability, and so permitted the rise of widely held freestanding firms.

Two factors changed this in the late 1960s.

One was the *Révolution tranquille* in Québec, which reignited Canada's dormant linguistic quarrels and created a national identity crisis. Separatist politicians sought to build a Québécois nation with sweeping industrial policies. To counter this, federal politicians nurtured Canadian identity with nationalist rhetoric. This led to concern about foreign control of Canadian companies, and probably to Canadian family groups serving as white knights to safeguard widely held firms from foreign acquirers.

The second factor was a renewed political respectability for state intervention. Each previous political philosophy – the Tory rejection of the American Revolution, 19th century liberalism, the progressive movement, and agrarian socialism in turn – quickly took on mercantilist garb upon touching Canadian soil. The Keynesian and social democratic philosophies of the 1970s were especially open to this. Canada's mercantilist undercurrent transformed idealistic plans to improve society into a morass of political rent-seeking. In this environment, family controlled corporate groups had an edge.

Thus, our findings support Burkart *et al.* (2002) and La Porta *et al.* (1999), who relate widely held ownership of corporations to sound institutions. They also support the general approach of Acemoglu *et al.* (2000, 2001, 2002, 2003), who stress the importance of colonial institutions in determining modern institutions. Our findings also give credence to the arguments of Morck and Yeung (2004) that family controlled corporate groups have an advantage in weak institutional environments because of superior rent seeking skills. However, they in no way undermine the thesis of Khanna and Palepu (2000, 2001, 2002) that other institutional deficiencies can also confer advantages on groups.

The remainder of the paper is as follows. Section 2 describes our ownership data. Section 3 describes Canada's colonial institutions. Section 4 describes institutions and large corporate ownership structures at the beginning of the twentieth century. Section 5 describes the evolution of large corporations ownership structures and proffers explanations. Section 6 concludes.

II. Description of the Data

To explore the evolution of corporate ownership, we require a picture of its initial conditions on the eve of industrialization. Continuous quantitative data are unavailable until the 20th century; however, qualitative descriptions of business ownership are possible. Such descriptions are useful in assessing the influence of Canada's colonial heritages on her industrial era institutions, and in interpreting quantitative data in later years when it becomes available.

These qualitative descriptions summarize relevant parts of the writings of several business historians. Bliss (1986) presents a thorough review of Canadian business history that is broadly sympathetic to the country's business elite, emphasizing their entrepreneurial ventures and risk taking as well as their occasional skullduggery. Francis (1986) describes the increasing importance of business groups as of the early 1980s, and provides some historical information about the thirty largest groups. Hedley (1894) provides brief biographies of Canadian business leaders. Unfortunately, many are at too low a level to be of interest to us. Myers (1914) is something of a muckraker, focusing on the rent-seeking, unsavory undertakings, and politically incorrect philosophies of the business elite. Naylor (1975) is quite critical of the business elite, and often appears sympathetic to leftist views. Taylor and Baskerville (1994) provide a highly useful history of Canadian businesses, though their coverage after 1930 is rushed. Tulchinsky (1977) provides information about colonial Montreal businesses. Parkman (1867) contains much information about Canada's colonial economy. All provide valuable information about ownership and control as asides to their main arguments.

Much of the qualitative description below relies on these sources – especially Bliss and Naylor for broad historical overviews and basic factual information. To avoid repetitive citations, specific references are mainly to other sources. However, a general reference pervades to these authors, and a degree of plagiarism is gratefully acknowledged.

Certain data on the health of the preindustrial and early industrial economy aides us in interpreting changes in corporate control. The Bay's dividend, available from 1670 on, reflects the health of the fur trade, and hence the colony's prosperity. *Per capita* GDP growth is available from 1870 on – from Urquhart (1993) prior to 1926, and from Statistics Canada thereafter.

Annual data on merger and acquisition activity from 1885 can be concatenated from several sources. Marchildon (1990) provides a series from 1885 to 1918. Maule (1966) reports data from 1900 to 1963. The Royal Commission of Corporate Concentration provides data for 1970 through 1986. For 1985 through 2000, data are from *Merger & Acquisition in Canada*.

Corporate financial records begin in 1902.[2] Since these are not available from a uniform source over the full history of the country, we combine all available sources for each time period to produce the most accurate representation possible. Data for later years are probably better. For 1965 through 1998 we take the largest 100 companies, as listed in the *Financial Post*, ranked by assets until 1967, and by revenue thereafter. For earlier years, *Financial Post* rankings are unavailable, so we build our own rankings using annual report data, summarized in the *Canadian Annual Financial Review* for 1910 through 1940 and in *Financial Post Corporate Securities* for 1950 through 1960.[3] We do not consider financial companies because these are not included in the top 100 rankings of the *Financial Post*, and because bank ownership structures are explicitly determined by federal legislation.[4] Both state-owned enterprises and multinational corporations constitute significant fractions of the corporate sector through much of the 20th century. We therefore consider alternative average ownership structures - including and then excluding state-owned enterprises, multinationals, and both.

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[2] Incomplete data for 1901 are available.

A second is that the *Financial Post* ranks the top hundred firms from 1901 to 1965 by assets, and for later years by revenues. This appears to be because only consolidated assets are available for many companies in the earlier years. For later years, when both rankings are available, the use of sales and assets generates similar pictures. Consequently, this shortcoming is unlikely to affect our findings.

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[3] The only major data problem concerns Hydro One, formerly Ontario Hydro. Though established in 1906 as the Hydro-Electric Power Commission of Ontario (HEPC), and clearly an important state-owned enterprise throughout the century, it appears as a consolidated entity in the rankings only in 1970. From 1920 on, we estimate its assets and revenues by summing sectoral data in its annual reports. Earlier financial data is extremely disorganized and marred by apparent instances of double counting. We therefore use a geometric mean growth rate, estimated from 1920 on, to infer assets and revenues for earlier years. This certainly adds noise to our early figures for state-owned enterprises.

[4] The Bank Act proscribes any shareholder from voting more than ten percent of the stock in a chartered bank.

Our early ownership data are from several sources. Annual reports summarized in the *Canadian Annual Financial Review* and *Financial Post Corporate Securities* list the identity of any controlling shareholder, though not their equity stake. However, we find instances where these data contradict descriptions of corporate ownership in books on Canadian business history - especially Baskerville and Taylor (1994), Bliss (1986), Myers (1914), and Naylor (1975). In such cases, we assume beneficial ownership was not always clear at the time due to obfuscatory holding company structures. We rely on the business historians to have sorted this out. One shortcoming inherent in using these descriptive sources, however, is that we cannot provide a clear cut definition of precisely what "controlled" or "member" of a corporate group means. A company is controlled by a family or belongs to a group if one of our historical sources says so, or if its annual report indicates so.

From 1965 on, securities laws require more detailed disclosure. Statistics Canada summarizes this in the *Directory of Inter-Corporate Ownership* (ICO), our primary source for these years. The *Financial Post* also provides the name and stake of the largest shareholder for top Canadian firms from 1970s on. We define a company as *controlled* if there is a combined direct and indirect voting stake of ten percent or more, or if the ICO lists it as controlled. The ICO infers control in the absence of a ten percent stake if board control derives from director selection rules, golden shares, and the like.

Using all these data, we classify each company into one of the following categories: free standing widely held firms, free standing family controlled, family controlled pyramid group firms, firms in pyramid groups controlled by widely held companies, firms controlled by a government or government agency, firms with a controlling foreign shareholder, and firms we cannot classify.

III. Colonial Origins

Much work on economic and institutional evolution stresses the importance of early colonial institutions to economic and financial development. This literature stresses *path dependence* – the idea that where an economy was long ago defines the possible places it can be now. Recent work highlights several variants of path dependence.

Solokoff and Engerman (2000, p. 221) argue colonies with plantation economies, like the Caribbean Islands and Latin America, started off with tiny colonial elites directing large populations of conquered natives or imported slaves. These elites had no incentive to establish institutions, like land reform, education, banking systems, or stock markets, that would help create small businesses and a middle class. In contrast, the Unites States, especially north of the Chesapeake, was settled by yeoman farmers who demanded precisely those institutions.[5]

Acemoglu, Johnson, and Robinson (2001) explain the difference between such regions with settler mortality rates. They argue that yeoman farmers settled the United States because the climate of that region allowed them to survive. In contrast, European settlers in the Caribbean and much of Latin American died in droves. Consequently, the colonial powers minimized European settlement and built institutions that facilitated natural resource exploitation – mines and plantations. These sorts of institutions, once established, endured because their owners had sufficient wealth to control the political system. Acemoglu, Johnson, and Robinson (2002, 2003) propose a slightly different view – Europeans preserved extractive precolonial institutions where indigenous civilizations were more developed, like parts of Latin America and Asia.

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[5] Other work, notably Acemoglu et al. (2001, 2002, 2003), Engerman and Sokoloff (1997), Easterly and Levine (2002), Rajan and Zingales (2003), similarly highlights the importance of an egalitarian distribution of economic power before industrialization, so that institutional development does not entrench a small elite.

Easterly and Levine (1997) point out that colonial era boundaries seldom correspond to linguistic or ethnic divisions, and use modern African data to show that ethnic diversity slows development. They find that ethnically divided countries have worse corruption, perhaps because of ethnic rivalry in tapping government coffers. Such countries also invest less in shared public infrastructure, perhaps because members of one group dislike funding projects the other group can share in.

Glaeser and Shleifer (2002) and La Porta *et al.* (1997, 1998, 1999, 2000) argue that events in their early history caused England, but not France, to develop laws that restrained elites, and hence that checked both official corruption and theft of outside investors' wealth by corporate insiders. In this view, most countries that inherited British Law, through colonization or transplantation, like the United States, developed dispersed corporate ownership; whole most countries that inherited French Law, like Latin American, developed concentrated ownership. In general, they argue that British Common Law better facilitates financial development. King and Levine (1993) demonstrate a clear connection between economic growth to financial development. Thus, a legal system that restrains insider power promotes financial development, which permits development.

Finally, Weber (1958) and others argue that elemental religious, cultural, and social factors direct economic development. Here again, Canada fails to fit nicely within any box. Québec remained profoundly Roman Catholic, and Anglophone Canada mainly Protestant, until the late 20th century. Both are now stoutly secular. In a variant of this hypothesis, La Porta *et al.* (1997a) argue that societies in which people are more prone to act cooperatively with strangers are better able to build and sustain the large-scale public and private-sector institutions needed for long-term economic growth.

All of these authors argue that modern institutions, including corporate ownership, reflect these 'locked-in' historical factors. Despite their many cultural and historical similarities, Canada's colonial origins differ from those of other European settlements in North America. These differences relate to several of the above path dependence arguments, and exploring them is therefore a good starting point.

L'Ancien Régime

French Canada was initially a colony of resource extraction, not a colony of settlement. During brief periods when settlement became paramount, Canada was a theocratic society, reminiscent of modern Iran. And when settlement and development was finally pushed determinedly, Canada became a laboratory in which Jean Baptiste Colbert, the father of French mercantilist economics, tested his theories with development schemes similar to Third World misadventures in the 1960s. The values and ideals of French Canada still echo these centuries of theocratic and company rule, though in unexpected and sometimes odd ways.

Canada's history as a colony of extraction began in 1534, when Jacques Cartier mapped the St. Lawrence valley and claimed Canada for France. Seven years later, Francis I created Sieur de Roberval Viceroy of Canada. Roberval founded Québec in 1541, but abandoned it after a single winter. Although France had no permanent colony in Canada, merchants in Atlantic ports, like La Rochelle, ran regular fur trading ships to Canada. From 1562 to the 1598 Edict of Nantes, bloody Wars of Religion ruined France. Cut off from Paris, Catholic, Huguenot, and Jewish merchants in the Atlantic ports grew wealthy off a highly competitive fur trade.

The Edict of Nantes ended the civil wars by granting Protestants full rights, but France remained deeply divided. To reunite France, the state was tightly centralized around an absolute monarchy – a structure that persists, through various reincarnations, to the present. This centralization of economic power bade ill for the competitive fur trade.

Henry IV granted a monopoly to a group of merchants in 1600 and a ten-year monopoly to Sieur de Monts in 1604. De Monts sent Samuel de Champlain to found Port Royal (Annapolis, NS) in 1605 and rebuild Québec in 1608. De Monts renewed his monopoly once; then Champlain's *Compagnie de Rouen et St.*

Malo obtained the sole right to trade furs. Rescinded in 1620 as the counterreformation swept France, the monopoly was transferred to *Compagnie de Caen*, run by the Rouen merchant William De Caen and his nephew. They established the feudal system in Canada, and the first fiefdom was granted in 1623 to Louis Hébert, whose Canadian title was Seigneur de Sault-au-Matelot.

All these monopolies were unenforceable until La Rochelle fell to the Royal Army in 1629. With the competition ruined, Cardinal Richelieu, Chief Advisor to the King since 1624, assigned his *Compagnie des Cent Assòciés* a permanent fur monopoly and limited monopolies on other transatlantic trades. In return, the *Compagnie* agreed to settle at least 300 *habitants* (feudal peasants) per year.

Now a Province of France, Canada had a Provincial Government run by the *Compagnie des Cent Associés* and a *Conseil Souverain* composed of the governor of Québec and senior Jesuits. The *Conseil* had lawmaking power over all Canada and subjected every aspect of the habitants' existence to the feudal order. Habitants were bound to the land, unable to marry without their seigneur's leave, and held no property save at their seigneur's pleasure. As the Holy Inquisition swept Catholic Europe, the Jesuits added an unforgiving Roman Catholicism to this mixture.

After Richelieu's death in 1642, the *Compagnie* quickly faded. The independent *coureurs de bois* seized the fur trade within Canada, and many grew rich. The same year, Sieur de Maisonneuve de la Société de Notre-Dame de Montréal founded that town as a missionary base. The Montréal clergy placed themselves above civil law and exercised their feudal powers and rights of tithe to accumulate great wealth.[6] This let the Canadian clergy and seigneurs take charge through a local council, the *Communauté des Habitants*, which soon controlled the *Compagnie des Cent Associés*.

This persisted until Jean-Baptiste Colbert, the intellectual father of Mercantilism, became Controller of Finance in 1661. Colbert used Canada to test his economic theories.[7] In 1663, he formally dissolved the *Compagnie des Cent Associés* and replaced the Local Council with a new *Conseil Souverain*, charged with applying *la Coutume de Paris*, the *ancien régime* Civil Code, in Canada.[8] Colbert appointed Jean Talon Intendant of Canada in1665, and ordered him to diversify the economy. Usually with himself as the major shareholder, Talon subsidized brick making, shoe making, beer making, wool production, mining, lumbering, eel packing, sea oil, and cod salting. Talon's *Conseil Souverain* also imposed import restrictions and wage and price controls. He shipped *les filles du roi*, peasant women, to Canada to promote population growth. All this was subsidized by Colbert's ministry, the *Departement de Marine*, even though Canada was now a *fief et seigneurie* of the *Compagnie des Indes Occidentals*, controlled by Colbert. Ultimately, none of these initiatives (save perhaps the *filles du roi*) proved viable.

Colbert's mercantilist experiments enriched a few local entrepreneurs. Charles Aubert de la Chesnaye, an agent in Canada for Rouen merchants, was probably the most important. He became a *négociant marchand* – a wholesaler, importer, exporter, financier, and moneylender. He backed loans with negotiable perpetuities, probably the first (informally) traded securities in Canada, and traded in feudal estates. In 1670, Chesnaye died deep in debt after a series of financial misfortunes.

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[6] Myers (1914) chapter 2.

[7] For a details of these subsidized diversification programs, see Fauteux (1927) and Bliss (1986).

[8] The *Coutume de Paris* granted the Canadian nobility the full feudal rights of the nobility in France, including the power of *haute justice* over their habitants.

In 1672, Louis de Buade de Frontenac et de Palluau, Comte de Frontenac, a young aristocrat seeking to evade his increasingly violent creditors, accepted the Governorship of Canada. (His pay was escrowed to his wife at court who slowly discharged his debts.) Frontenac continued Colbert's mercantilist projects and subsidized the Royal Army Engineers to build a scratchwork of canals.[9]

With Colbert's death in 1683, France focused on her new colony at Louisbourg, Acadia, near the Grand Banks and so more prosperous than Québec. But Colbert's mercantilist vision endured. The Intendants Bégon and Hocquart used state funds to subsidize a rope making operation, which quickly failed. Hocquart blamed a lack of investment capital among Canadian merchants for the colony's slow growth, and sponsored a shipyard and an ironworks, the latter a 1729 proposal of François Poulin de Francheville, Seigneur de St. Maurice. Both, and the rope works, soon failed due to prohibitive costs and inadequate control. Olivier de Vézin, an engineer, redeveloped the ironworks as *La Compagnie des Forges du Saint-Maurice* with further government money in 1737. Lunn (1942) describes the result:

> "Indications of the disaster which was to overtake the enterprise were evident from the beginning … . By October 1737, when the establishment was announced to be complete, the total

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[9] See Bliss (1986).

> expenditure was 146,588 *livres* instead of the 100,000 estimated … . In 1737 Hocquart had made over to the company the remainder of the loan of 100,000 *livres* agreed upon, but the partners declared they must have an additional 82,642 *livres*. Their need was so pressing that Hocquart took it upon himself to advance them 25,233 *livres*, to be deducted from the 82,642 *livres* which he begged the Minister to lend … .
>
> "The Minister replied in accents of horror and indignation. … It seemed clear to the Minister that there had been much waste and extravagance. Nevertheless, he did consent to the new loan … .
>
> "Further shocks were in store for the minister. In 1738, the company foresaw that it would not be able to meet its first payment due in 1739 and the King had to agree to yet another year's delay. … De Vézin's estimate had proved completely unreliable, for expenses far exceeded and production fell far short of what had been anticipated … Constant breakdowns of the furnace interfered seriously with production … The Forges were operated by a staff of costly, dilatory, insubordinate and discontented workmen."[10]

La Compagnie des Forges du Saint-Maurice sank in 1741, pulled down by engineering, managerial, and financial farce. The state took over the forges and shipyards. The latter posted regular losses until long after the Conquest. None of these mercantilist projects stopped Canada's drain on the Royal Treasury. Exports exceed imports only once in the entire history of the colony, in 1741. The most consistently profitable business was the *Société du Canada*, run by the Huguenot merchant Robert Dugard, which shipped staples to Canada.

Britain and France wrestled for control of Canada in the War of the Austrian Succession (1740 to 1748) and the Seven Years War (1755 to 1763). Louisbourg fell to Britain in 1758, and Québec in 1759. With the 1763 Treaty of Paris, all Canada passed to Britain. Blamed for the loss in *L'affaire du Canada*, the last Governor, de Vaudreuil, the last Intendant, Bigot, and other senior Canadian officials moldered in the Bastille for "corruption."

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[10] Quoted in Bliss (1986), p. 65.

British North America

Henry Hudson's 1610 claim for Britain to the lands around Hudson's Bay lay unexploited until 1670, when Charles II granted his cousin, Prince Rupert, a fur trade monopoly and rechristened the region Rupertsland. Rupert organized *The Company of Adventurers of England trading into Hudsons Bay* (a.k.a. The Hudson's Bay Company, or 'the Bay'), a joint stock company, to raise funds.[11] The forts, trading posts, and ships required - as well as the risks inherent in the fur trade - were beyond the resources of even the wealthiest individual families. Thus, the Hudson's Bay Company, like the British East India Company and the Dutch East Indies Company, was among the first joint stock companies formed. Figure 1, showing the company's annual dividend, is a barometer of the prosperity of the fur trade and, later, of the Canadian economy. From 1670 to the War of the Austrian Succession, British interests in Canada consisted of the Bay's scattered trading posts and little else.

[Figure 1 about here]

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[11] The Company was empowered to employ an armed force, appoint commanders, erect forts and take other necessary measures to protect its property. See Myers (1914) chapter 3. The Bay still exists as a chain of department stores.

After the Seven Years War, a deeply corrupt British colonial government took control of Canada.[12] Colonel Talbot, General Brock, and Bishop Mountain all seized vast tracts of Upper Canada (Ontario), while the Governor, Henry Hamilton, Judge Elmslie, Judge Powell, and Solicitor General Gray appropriated huge swaths of Lower Canada (Québec). All of Prince Edward Island was divided up by the Montgomery, Selkirk, Westmoreland, Cambridge, Macdonnell, and Seymour families.

Partially in response to such abuses, London suspended British Common Law in Canada in 1774, restored the French Civil Code of the *ancien régime* in property law and all matters except criminal cases, and extended the boundaries of civil law application to all of British North America north or west of the Appalachians. This seems to be because civil law better restricted land grabs by the local elite. However, French feudal land tenure and civil law were now firmly rooted in British North America.

A tax rebellion, these restrictions on land claims west of the Appalachians, and an elite deeply indebted to British merchant houses combined to inspire rebellion in the thirteen coastal colonies in 1776. This conflict was essentially a civil war, with at least a third of the colonial population remaining loyal to the Empire. French intervention allowed a secessionist victory, and revolutionary governments took power in the thirteen colonies. Revolutionary tribunals confiscated the property of those on the losing side and exiled them. In one of history's largest forced displacements, hundreds of thousands of impoverished United Empire Loyalist refugees straggled north.[13] In a few short years, Canada was transformed from a Francophone country into a half-English half-French country.

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[12] For details of specific corrupt dealings, see chapter 5 of Myers (1914).

Loyalists settling in Canada disliked the French Civil Code and coveted land. In 1791, their lobbying partitioned Canada into Upper Canada (Ontario) and Lower Canada (Québec). In 1793, Chief Justice Osgood restored Common Law in Upper Canada (Ontario). Upper Canada's Governor, Robert Prescott, and Lieutenant Governor, John Graves Simco, stalwartly upheld directives from London to hold land open for settlement. By 1794, Osgood forced both from office and installed Sir Robert Shore Milnes as Governor and Peter Russell as Lieutenant Governor. Together they apportioned virtually all remaining unclaimed land to a tiny elite of leading Loyalist families, later called the *Family Compact*.

The Family Compact's dominance is hard to exaggerate, as is its success in retarding economic development.[14] As absentee landlords, the families opposed settlement and roads for fear of losing title to squatters. Their control of the legislative and executive councils, the Church, and colonial courts let them safeguard their interests regardless of the effect on the economy's overall development.

The influence of the so-called Chateau Clique in Lower Canada was narrower, and so less effective at braking growth. In 1779, British and Loyalist merchants in Montréal established the Northwest Company to compete with the

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[13] The precise number of Loyalists is disputed by historians.
[14] See Myers (1914) chapter 6.

Hudson's Bay Company for the fur trade, contesting the legitimacy of the latter's monopoly. The original founders of the Northwest Company included Simon McTavish, Todd and McGill, Charles Grant, Benjamin and Joseph Frobisher, the firm of McGill and Patterson and five other merchants and firms.[15] The resulting wealth gave the same names prominence in banking, shipping, and railroad promotion decades later.

Since the Hudson's Bay Company had its own militia, the Northwest Company needed one too. Their battle for market share is best described in military terms. The results are also evident in Figure 1 in the reduced dividend of the HBC.

During this period, the most entrepreneurial regions of British North America were the Maritime Colonies – Nova Scotia and New Brunswick. Abraham Cunard, a master carpenter, arrived in Halifax in 1783 and rapidly established stores, mills, lumbering, sawmills, shipbuilding, an accounting firm, and other businesses. Despite strong competition from other "timber barons" like Gilmour, Rankin, & Co., Philemon Wright & Sons, William Price, and John Egan, A. Cunard & Son prospered. Many timber barons, including Christopher Scott, John and Charles Wood, and the Cunards, expanded into shipbuilding and shipping. Bliss (1986, p. 135) remarks that all of these fortunes were technically founded on theft, for the timber was almost all harvested from Crown land. The Cunard Line prospered, especially after it obtained a monopoly on delivering the Royal Mail between Britain and the Americas.

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[15] See Myers (1914) chapter 4.

In 1812, the Napoleonic War engulfed the Canadas as an American invasion force burned Toronto and despoiled farms and villages. Figure 1 illustrates the disruption of the fur trade in the elimination of HBC dividends. The French and their American allies defeated, the inflow of settlers resumed. Although a new British colony was established in Manitoba in 1811, its remoteness, and the Bay's unwillingness to grant settlers formal property rights, deterred settlement.[16] The Bay viewed farmers as disruptive of its trading relations with Indians, and effectively prevented further westward expansion of settlement. Thus, immigrants remained in the Canadas and the Maritimes.

The economy grew faster in Lower Canada, where the Chateau Clique exercised a looser dominance than did the Family Compact in Upper Canada. Montréal, closer to the Atlantic and the coastal colonies, emerged as the economic center of Canada. In 1821, the Bay absorbed the Northwest Company. The costs of their militarized competition had grown, in both money and death toll, and Figure 1 illustrates the advantages of a fur trade monopoly. The former principals of the Northwest Company in Montréal, the McGills, MacTavishes, Frobishers, Grants, and others, now had considerable wealth to invest in other ventures.

The House of Phyn, Ellice & Co. established a branch in Montréal in the late 1770s to finance the staples trade, and so was the first bank in Canada. The Napoleonic Wars disrupted this business, and once peace was restored, John

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[16] Myers (1914) describes an 1857 a petition signed by Red River settlers to London describing how they had "paid large sums of money to the Hudson's Bay Company for land ... yet we cannot obtain deeds for the same. The Company's agents have made several attempts to force upon us deeds which would reduce ourselves and our posterity to the most abject slavery under that body... ."

Richardson and Horatio Gates, the Montréal principals of Phyn, Ellice and Co., established the Bank of Montréal as a partnership. The Bank of Montréal subscribed to the *real bills doctrine*, and issued dollar banknotes backed by the staples trade, thereby establishing the currency unit for Canada. Rival banks quickly formed in Lower Canada, but the Bank of Montréal, soon run by Peter McGill, remained dominant. The Bank of Nova Scotia was chartered in 1832 in Halifax as the first limited liability joint stock company in what would become Canada.

John Molson, a young Englishman, arrived in Montréal in 1785 and invested his inheritance in a brewery. This continually profitable venture let him finance the first steamship in 1809. Although Molson lobbied for a steamship monopoly, he was unsuccessful and a brisk competition ensued. Profits from his brewery let him underprice the competition, and eventually buy most out.

The main competition would ultimately be the Allan Line, run by Hugh Allan, a partner in his father's Scottish shipbuilding and merchant firm, Edmonstone, Allan & Co. With family money, Allan launched the Montréal Ocean Steamship Co. in 1852, and immediately reaped great profits transporting troops to the Crimean War. Bliss (1986) reports that "Allan ships sank, ran aground, and broke up with astonishing frequency", but that he courted politicians generously, and was a recognized master of political influence. By the 1860s, the Allan Lines safety record was improving, and the family was growing rich bringing steerage immigrants to North America.[17] According to Myers

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[17] The Allan Line sued the *Montreal Witness*, a newspaper that ran stories about the filth and overcrowding in its steerage compartments, for libel. In 1883, shortly after Allan's death, the

(1914), Allan served as president of fifteen corporations and vice-president of six others at the zenith of his career – in industries spanning telegraphy, navigation, iron, tobacco, cotton manufacturing, railways, sewing machine, cattle, rolling mills, paper, cars, elevators, and coal. His Montréal Warehouse Company undertook land speculation.[18]

In 1838, Joseph Howe, a Nova Scotia colonial leader, lobbied the Royal Mail to switch to steam delivery, and the Admiralty invited tenders. Although none of the responses met the Admiralty's conditions, Samuel Cunard, Abraham's eldest son, now running the family business, won the contract – apparently through his influential friends in England, including Lady Caroline Norton, the mistress of Lord Melbourne, then the British prime minister. This guaranteed mail business gave the Cunard Line a critical edge over its competition, the Inman and Collins lines. Both modernized rapidly, switching to screw-driven ironclads at great expense, and ultimately failed. Cunard modernized more slowly, and, as Bliss notes) profitably delivered the Royal Mail between London, Halifax, New York, and Boston in wooden steamships.

The Bank of Upper Canada, controlled by the Family Compact, exercised a near monopoly in that colony.[19] In 1825, John Galt, a novelist, organized the Canada Company to resell land to immigrants; but such entrepreneurial ventures were notable in their rarity.[20] Some outsiders, notably the Scottish immigrants Isaac and Peter Buchanan and their Ulsterman partner Robert Harris, got Bank of

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jury, after hearing all of the evidence during a trial of eight days, returned a verdict in favor of the *Montreal Witness* on all counts. For details, see *Monetary Times*, Nov. 2, 1883 p. 491.

[18] Myers (1914) chapter 12.

[19] See Baskerville (1987).

[20] Browde (2002).

Upper Canada backing and grew rich off the Upper Canadian staples trade. But Isaac recalled that

> "The wonderful success of my operations in Canada may be to a great extent attributed to my solemn determination not to trust Yankees and my exercising the most vigorous scrutiny before doing business with a man Canadian born …"[21]

The biggest enterprises in Upper Canada in the early 19th century were canals. The government built the Rideau Canal from the Ottawa River to Lake Ontario. William Hamilton Merritt organized the Welland Canal, linking Lake Erie and Lake Ontario, as a joint stock company controlled by the Family Compact. After providing generous state subsidies and loans, the Upper Canada government finally bought out the owners of the failing venture in 1841. The newspaperman William Lyon Mackenzie charged that the whole project was a scam to enrich the Family Compact. Upper Canada's public finances never recovered.

In 1832, railroad stocks began trading in a café in Montréal that eventually became the Montréal Stock Exchange. The Champlain and St. Lawrence Rail Road was built in 1834 with backing from the Molsons, Horatio Gates, and Peter McGill, then the president of the Bank of Montréal; and financing for other railroads was undertaken.

But complaints about gross corruption and abuse of office by the elites of both Canadas grew louder. Denied political influence and economic opportunities, new immigrants formed an opposition movement that ultimately coalesced into the Reform Party. Francis Bond Head, Governor of Upper Canada from 1835 to 1837 cracked down with a policy of "order and discipline". His refusal to permit the suspension of specie payment during the Panic of 1837 caused the Bank of Upper Canada to call in debts ruthlessly throughout the colony, further infuriating the populace. Lower Canada fractured along linguistic lines.

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[21] Bliss (1986) p. 154.

Open rebellion broke out in 1837, as Louis-Joseph Papineau declared a Republic in Lower Canada and William Lyon Mackenzie did likewise in Upper Canada.[22] Demanding an end to feudalism, church estates, trade barriers, and land reform, the rebels had strong popular support.[23] Although the army restored order, Upper Canada debentures collapsed. London dispatched a new governor, Lord Durham, whose 1839 report damned decades of fraud and theft by the colonial elite and recommended Responsible Government – democratic home rule.[24]

The end of the Imperial Preference in 1846 exposed Canadian merchants to free trade. The economy collapsed, and Lord Elgin, the Governor General of Canada, reported in 1849 that

> "Property in most Canadian towns, and most especially in the capital [Montréal], has fallen 50 percent in value within the last three years. Three fourths of the commercial men are bankrupt.[25]

In the London markets Canada's standing, battered by the rebellions of the late 1830s, collapsed

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[22] Although Nova Scotians increasingly resented the appointed Council of Twelve (Cunard and other merchants) that ran that colony, democratic reform came peacefully there.
[23] See Myers (1914).
[24] See Lambton (1838) Vol. X for a description of the abuses.
[25] Bliss (1986) p. 158.

In 1849, responding to Durham's report (and British bondholders), London merged bankrupt Upper Canada and fiscally sound Lower Canada to form a united, solvent, Province of Canada with home rule. In response, a Tory mob burned parliament. But Canada now had a Prime Minister responsible to an elected legislature. Still, since an Imperial guarantee was needed to float Canadian debt, the Imperial Government appointed the London investment houses of Barings and Glyns to oversee the colony's finances.

In 1844, Alexander established the Sherbrooke Cotton Mill, Canada's first industrial joint stock company, and more investment opportunities emerged as the colony's politics stabilized. Perhaps the most important development policy of the new united province was the new 1849 Patent Act, which forbade Canadian patents on American technology, creating multitudes of openings for local entrepreneurs capable of using such know-how.

The colony's political leaders felt hamstrung by their inability to subsidize such new ventures. Francis Hincks, an entrepreneur and Member of Parliament, partially solved this problem with a new Municipalities Act, which let towns float debt. A more complete solution appeared in 1849, when Canada began guaranteeing railroad debt, but only if prominent politicians, such as Hincks and Galt, were on the board to "guarantee good management." After a brief financial crisis in 1849, a boom and bust in railroad stocks ensued, and railroad construction resumed on a grand scale. Although railroads built honest fortunes, like that of the engineer Casimir Gzoski, corruption was endemic.[26] Sir Allan

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[26] See Myers (1914) chapters 10 and 11 for a detailed description of specific allegations and evidence, including the report of the 1876-1877 Select Parliamentary Investigating Committee.

Napier MacNab, president of the Great Western Railway, served Canada as chair of the Parliamentary Standing Committee of Railways and Telegraphs.[27] The grandest project, the Grand Truck Railroad, run by Prime Minister Hincks, was ineptly built and almost unusable.[28] A British lobbyist hired by Hincks to lobby members of parliament wrote:

> I do not think there is much to be said for Canadians over Turks when contracts, places, free tickets on railways, or even cash was in question.[29]

A Barings investigation exposed rampant fraud, kickbacks, and deceit; and Barings blocked further Canadian listings in London to obtain a veto over additional debt financing and guarantees in 1851. This merely tested the ingenuity of the colonial political elite in circumventing such checks. Railway subsidies became a top government priority. According to Naylor (1975), railroad construction and financing in colonial Canada were "appalling even by the standards of the day." Virtually every important politician now moonlighted as a railway officer or director, and railway subsidies both enriched political insiders and drained government coffers. Current, past, and future Prime Ministers Francis Hincks, Alexander T. Galt, and John A. MacDonald, respectively, and most of their cabinet ministers all had railway financial ties.[30] In 1858, Alexander Galt, now Finance Minister, subordinated Canada's sovereign debt to railroad common stock and raised the tariff to obtain funds for larger

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Mills (1872), a Member of Parliament, writes that "Corruption taints the majority of railway enterprises from their inception to completion" and provides details.

[27] Bliss (1986) p. 186.

[28] Myers (1914) c. 11.

[29] Bliss (1986) p. 187.

[30] Myers (1914), Bliss (1986).

railway subsidies. By the 1860s, Canada had both a shoddily built, poorly run railroad system and a near bankrupt government.

Now, only union with the solvent Maritime colonies of Nova Scotia and New Brunswick promised fiscal rescue. When the United States abrogated the Reciprocity Treaty in 1866, Galt lowered the tariff slightly on manufactured goods to match those of the Nova Scotia and New Brunswick colonies, in preparation for their union with Canada. In 1867, British investors blocked New Brunswick and Nova Scotia financing in London to force such a union. The resulting confederation was the Dominion of Canada, a self-governing entity within the British Empire. Canadian independence is usually dated to 1867, though Responsible Government came earlier and Canada remained within the Empire long after. Since the Canadian parliament assumed almost all of the powers of the parliament in London in 1867, this date is probably more appropriate than any other.

Despite endemic corruption worthy of the worst modern Third World economies, the economy modernized. Alexander Galt formed the British American Land Co. in 1831 to buy feudal estates in Lower Canada and sell small homesteads to English settlers, much as John Galt, his father, had in Upper Canada.[31] Thus, land reform proceeded through private sector initiative. The Toronto Stock Exchange, founded in 1854 primarily as a commodity exchange, now traded railroad stocks and even a few other companies. Free trade, though originally disruptive, now let Canada benefit from elevated wheat prices during the Crimean War. An 1854 Reciprocity Treaty (free trade) with the United States further stimulated the economy. Also in 1854, Prime Minister Hincks bought out the remaining seigneurs of Lower Canada, finally ridding Canada of the feudal system.[32] Although slave sales were abolished in 1797, French Canadian *habitants* emerged completely from feudal serfdom only a few years before the US Civil War. In 1866, Lower Canada replaced *la Coutom de Paris* Civil Code with the Lower Canada Civil Code, an updated version of the Napoleonic code, and adopted Common Law for certain commercial and maritime disputes.

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[31] Dowde (2002).

Canada on the Eve of Industrialization

All of this invites comparison with the theories, outlined above, of colonial origins determining subsequent institutional and economic development.

Canada, though ultimately a colony of settlement, was long a colony of resource extraction. The core industry through the mid 19th century was the fur trade – natives selling pelts to Europeans stationed in a dispersed network of Bay trading posts. The Bay actively opposed colonization for fear that yeoman farmers would disrupt relations with Indian and Métis trappers. Agriculture in French Canada was organized into feudal estates modeled on those in pre-Revolutionary France. The early British elite, especially the Family Compact, emulated this by monopolizing land claims. Overall, the early history of Canada thus resembles Solokoff and Engerman's (2000) description of Caribbean and Latin America colonial economies.

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[32] Myers (1914) makes much of the generous terms of the buyout in contrast to the conditions under which feudalism ended in France in 1789.

The Canadian climate, though harsh, was not deadly to Europeans, and the French eventually switched their emphasis, in part, to settlement. This was accompanied by extensive mercantilist state intervention and corruption under the French colonial regime. Their British successors preserved much of this institutional heritage, even as Loyalist refugees flooded the colony. Thus, an exogenous political even, the succession of the thirteen coastal colonies, irrevocably converted Canada into a colony of settlement, increasingly populated by yeoman farmers who demanded, and ultimately got, legal protection from the colony's elite. Canadian economic history is inconsistent with Acemoglu, Johnson, and Robinson (2002, 2003), in that a climate in which European settlers could survive did not *per se* trigger rapid settlement. However, once large-scale British settlement occurred, pressure for British institutions ensued after a few decades, consistent with a broader interpretation of their thesis.

Easterly and Levine (1997) find that ethnic diversity slows development. The longstanding French-English rivalry in Canada might well have slowed Canada's overall growth, for arguments about each linguistic group's access to government cash flows were central to the debates leading up to Home Rule in 1848 and Confederation in 1867. However, ethnically divided Lower Canada was certainly more dynamic than thoroughly Loyalist Upper Canada with its Family Compact earlier in the 19th century. Factors other than linguistic divisions were clearly at work as well.

La Porta *et al.* (1997, 1998, 1999, 2000) demonstrate a clear correlation between the use of legal systems derived from British Common Law and fuller financial and institutional development. The early stages of economic development reveal no clear superiority of British over French law. Corruption occurred under both. Although Canada adopted aspects of Common Law in fields relevant to business corporations, French Civil Law still remains important in Québec. Montreal remained the country's economic center of gravity until the 20th century, so early Canadian businesses functioned in a hybrid legal environment combining Civil and Common Law. La Porta *et al.* argue that official corruption and insider abuse of investors are more limited by the British than the French legal system. Canada has a venerable tradition of state subsidies to politically connected businesses that we would now characterize as corruption. This may echo Canada's French heritage; but if more than a century of British colonial rule failed to silence these echoes, adopting British legal systems is hardly a viable development strategy for today's emerging economies. Alternatively, the La Porta *et al.* findings may pertain to an effect of British Common Law on later stages of industrialization.

Certainly, the half century after widespread British settlement and the establishment of British institutions saw Canada successfully transform from a sparsely populated feudal wilderness into a country with farms, cities, canals and railways. Land development schemes opened new feudal estates to settlement. The foundations of great business dynasties were laid. While there was clearly enormous waste and theft, this deeply corrupt political economy nonetheless advanced to the earliest stages of industrialization. These observations raise questions about the current condemnation of "corruption" as inimical to development in the third world. Canada's colonial heritage renders the hypothesis that sound institutions are a consequence of growth, rather than its cause, at least worthy of serious thought.

English Canadians, whose origin myths are of refugees fleeing revolutionary tribunals and armed debtors, can value "peace, order and good government" to an extent that foreigners and more recent immigrants find hard to fathom. The Anglo elite, who dominated Canadian business from the 1780s on, adapted the mercantilist state they inherited from France to their own needs. The French population remained deeply subservient to the Roman Catholic hierarchy, who dealt with the English elite. This may explain why Canadians, even Protestant ones, respected existing institutions and hierarchies more than their American cousins did. La Porta *et al.* (1997a) argue that less hierarchically organized societies better accommodate economic and institutional development, and Canada's halting growth relative to that of the United States seems consistent with this.

IV Industrialization

The last decade of the 19th century and first decade of the 20th century were Canada's high growth period. Understanding how corporate ownership and control, and other institutions, evolved during this period is therefore of special interest, as is the institutional structure developed in the prior two decades.

The high growth period corresponds closely to the governments of Sir Wilfrid Laurier, the first long-serving prime minister unmarred by scandal.

Laurier's Liberals took power in 1896, and oversaw a booming economy that lasted until his defeat in 1912. The first Québecois Prime Minister, Laurier grandly proclaimed, "Canada will fill the twentieth century." This seemed not absurd at the time, for Canada's population and industrial production grew at unprecedented (and unsurpassed) rates. A popular diversion of the time was forecasting when Canada's population would exceed that of the United States by extrapolating the two countries' growth rates. Visionary politicians seriously advocated *imperialism*, envisioning Canada assuming the burden of weary Britain's worldwide Empire. This too seemed not unreasonable, and Laurier was a dedicated imperialist.

The fat Hudson's Bay Company dividends of this era, shown in Figure 1, as well as the more direct measures of growth in Figures 2 and 3, all also attest to the country's prosperity.

[Figures 2 and 3 about here]

Economic expansion paralleled an immigration boom. Under Laurier, Canada's population rose 44%. Western Canada was rapidly populated along the proliferating transcontinental CPR system. All sectors of the economy grew rapidly and simultaneously to accommodate this infrastructure investment, and the millions of new consumers flooding in. The situation thus closely resembles what Murphy *et al.* (1989) call a *big push* – rapid development sustained by the simultaneous expansion of many interdependent sectors, so demand for intermediate and final goods grows apace with their supply.

The railway, and the immigrant settler farms springing up around it created an economic low pressure zone. Every sort of new business was needed to supply the railroad, the settlers, and all the other new businesses opening to serve them.

Bracing for the Big Push

Although the actual *big push* occurred when Laurier was Prime Minister, the Tory Prime Minister, John A. MacDonald cleared the way over the previous two decades. He did this by managing unfolding political events to divert ever greater subsidies to the CPR. The successful completion of this transcontinental line created space for immigrants, who raised demand for all manner of goods, which allowed the *big push* to succeed. The details of this ground clearing are important.

In 1867, Canada's most important business was still the Bay, which still owned Rupertsland – most of the northern half of North America. The Chief Factor, George Simpson, ruthlessly exploited Rupertsland from the mid 1820s to the 1860s. The bastard son of a Presbyterian minister, Simpson had a profound suspicion of ethics that compensated for the waning European demand for beaver pelts. Nonetheless, the Bay's directors saw an inevitable decline in both the fur trade and the Bay's dividend in Figure 1. Through two takeovers, the Bay diversified into lumbering, fishing, livestock, coal mining, buffalo wool, and even a colony in Oregon. All failed, and the dividend slid. Ultimately, a new management team concluded that forsaking the fur trade and selling the Bay's vast landholdings was in the best interests of the shareholders. In 1868, the next Chief Factor, Donald Smith, sold Canada all of Rupertsland, including the Manitoba colony. The profit maximization decision of a monopoly resource extraction company thus transformed Canada from a colony of extraction to a colony of settlement.

The big push that followed saw no abatement of corruption. Property rights actually grew more unsettled before they became stronger, and the transcontinental line's construction was rife with political kickbacks and self-dealing. The Bay had never assigned formal land titles to the residents of its Manitoba colony. Sold to Canada with no provision for their property rights, the métis and other settlers rose in rebellion in 1869. The poet and philosopher Louis Riel declared a Republic of Manitoba, and seceded from Canada.[33] The rebels surrendered in 1870, and President Riel fled. Manitoba rejoined Canada as a province and the rest of Rupertsland became the Northwest Territories. Property rights were formalized and settlers poured in. But MacDonald concluded that Canada needed a transcontinental railroad to exercise sovereignty over this vast region. In 1871, he convinced the British Pacific coast colonies to join Canada as the province of British Columbia by promising them a transcontinental railroad.

Hugh Allan, owner of the Allen Line, founded the Canada Pacific Co. to build the link. The Grand Trunk, fearing competition, lobbied furiously to undermine Allan's company. The Panic of 1873 and subsequent depression – Figure 3 shows a drop in per capita GNP of almost 8% in 1876 – stalled these plans. The exposure of a huge kickback from Allan to MacDonald brought down the Tory government, prolonging the stall. The new Liberal government of Alexander Mackenzie cautiously raised the tariff and tried to rehabilitate Canadian debt in London. But a series of bank panics and failures continued through the 1870s.

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[33] See Myers (1914) chapter 9 for a detailed description of the conflicting interests behind the rebellion and its suppression.

With no railroad in sight, British Columbia elected a separatist government in 1878. MacDonald recaptured power in 1879 pledging to complete the railroad immediately – as well as raise the tariff and subsidize the Roman Catholic clergy.

The CPR was incorporated in 1881, and its first president, George Stephen, quickly sold his own railways to the CPR. MacDonald provided the CPR a subsidy of millions of acres of former Bay lands. These were assigned to a company controlled by the Bay's Chief Factor, Donald Smith, and Edmund Osler, the owner several other railways the CPR bought. In 1883, Smith joined the CPR board and quickly dominated its management. Thus corruption, or at least self-dealing, was central to the CPR from its inception.

To keep railroad construction teams supplied, existing industrial production expanded rapidly. Land prices soared, new coal and natural gas fields were discovered and developed, and settlers moved farther west onto land claimed by Indians and the Métis descendents of trappers. In 1884, Louis Riel reappeared to declare a Republic in Saskatchewan. MacDonald now had to subsidize accelerated CPR construction to move troops to Saskatchewan. Riel was hanged and no other province has seceded (at writing). The Indian tribes, all repeatedly decimated by disease, and aware of the carnage in the western United States, signed treaties and moved peaceably onto reservations. British concepts of property rights replaced communal tribal claims everywhere else.

The CPR finished its transcontinental mainline in 1886, and then diversified into steamships and luxury hotels. It soon displaced the Bay as the dominant business of the land. Presidents of the CPR and Prime Ministers of Canada renegotiated subsidies (upwards, eventually to over 200 million dollars plus land grants) as equals.[34]

Railroads built the greatest fortunes of the 1890s, enriching Richard Angus, Joseph Hickson, George Cox, Duncan MacIntyre, Lord Strathcona and Mount Royal (formerly Donald Smith), Lord Mount Stephen (formerly George Stephen), and William Van Horne. All but Cox and Hickson grew wealthy building or operating the CPR. Hickson grew rich revitalizing the old Grand Trunk, and Cox by reselling the bankrupt Midland Railway to the Grand Trunk.[35]

The stage was now set for 'big push' development, as in Murphy *et al.* (1989). Large pools of capital stood ready. The CPR, albeit built for political and military reasons, opened vast new territories. Population could grow rapidly, for the Bay no longer blocked settlement. Rather, its Chief Factor was set to make a fortune selling land to immigrants.

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[34] Myers (1914) chapter 14.

[35] Myers (1914) chapter 14.

All this occurred in an economy still mired in both official and private corruption, surrounded by prohibitive tariffs, and hosting a scandal-plagued financial system.

Corruption and the Big Push

Official corruption retards economic development – see Mauro (1995) and many others for empirical evidence. Murphy *et al.* (1991, 1993) argue that corruption does this by raising the return to investing in political connections above that to investing in ordinary business projects, like plant and equipment, or research and development. This diverts talented individuals away from careers as engineers, inventors, and entrepreneurs and into more lucrative careers as politicians and bureaucrats.

Canada was clearly an extremely corrupt country, at least by modern standards, when it began industrializing. However, politicians expected, and were expected to become wealthy from public office. Behavior that today would clearly constitute corruption was not only legal, but anticipated.

An 1875 requirement that insurance companies invest domestically repelled foreign insurers and opened the field for a spate of new Canadian insurers. Confederation Life was run by Sir Francis Hincks, then Finance Minister. Prime Minister Mackenzie took charge of North American Life after losing power in 1878. Prime Minister MacDonald served as president of Manufacturer's Life while in office. Sun Life was run by Matthew Gault until MacDonald intervened to oust him. The Bay's Chief Factor, Donald Smith, used his seat in Parliament to promote his steamship and railway investments in Manitoba.[36]

Thus, members of Parliament and provincial politicians, such as Manitoba Premier John Norquay, routinely empowered each other to develop and run coal mines, lumber companies, and land companies.[37] Robert Dunsmuir, wealthy from his Union and Wellington Colliery, Esquimault and Nanaimo Railway, and especially his land grant from the government at the CPR Pacific terminus, an obscure village called Vancouver, served the people of British Columbia in the provincial legislature.[38]

Municipal politicians also moonlighted as barons of industry.[39] A good example is George Cox, who ran British America Insurance, Canada Life, the Canadian Bank of Commerce (now CIBC), Central Canada Savings and Loan, Canada Landed & National Investment Co., Dominion Coal, Dominion Securities, Imperial Life, Manitoba Northwest, National Trust, Toronto Savings and Loan, and Western Insurance. While thus burdened, Cox served the people as the six-term mayor of Peterborough, Ontario.

However, several factors probably eased the drag of corruption on the economy enough for a *big push* to succeed under Laurier.

First, some corruption worked for the good. Although MacDonald won and retained power through blatantly corrupt elections, took kickbacks from railroad companies, and continually blurred the boundaries between his private and public duties; he pushed through the transcontinental railway. The CPR, though mired in what today we would call corruption, certainly *raised* the returns to genuine entrepreneurship in numerous other industries, and so shifted talent in that direction.

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[36] Myers (1914) chapter 13.
[37] Myers (1914) chapters 16 and 17.
[38] Myers (1914) chapter 16.
[39] For a detailed list, see Myers (1914) chapter 15.

Second, such corruption grew increasingly unacceptable to the general populace over time. The Yeoman farmers of Ontario found the Family Compact's economic stranglehold maddening enough to rise in rebellion in 1837, and the Liberal rebellions of 1837 brought corruption down a notch. Official failures to honor existing property rights caused first Manitoba and then Saskatchewan to secede. Both rebellions were put down, but both also ratcheted respect for private property rights up a notch. MacDonald, though not jailed for demanding kickbacks from railroads, was forced from office temporarily. Future politicians would have to be more honest, or at least more careful. Ultimately the *big push* came under Laurier, who gave Canada almost two decades of unprecedentedly honest government, and hence of abnormally low returns to corruption.

Finally, the returns to genuine business entrepreneurship in Canada probably were very high indeed during the big push years. Even given a degree of corruption, genuine entrepreneurship was still a very attractive career. This requires a bit of elaboration.

Counterintuitively, the weakness of certain property rights likely encouraged local entrepreneurs. Before 1872, honoring foreign patents was illegal. This let Canadian entrepreneurs freely use the most up-to-date foreign technology. In response to suggestions by some of Canada's trading partners, MacDonald revised the Patent Act in 1872 to permit the honoring of US patents if the holder had a plant in Canada. This was justified as encouraging foreign direct investment. Overall, these policies encouraged new high technology industries, including steel casting, cement manufacture, farm machinery, and the like.

Fortuitously, many new technologies fit the Canadian economy well. The countryside was designed for hydroelectric power. One important project, by William Mackenzie, momentarily drawn from his railroads and Latin American investments, was turbines under Niagara Falls and lines to transmit the power to Toronto.

Also tailor-made for Canada, another new technology made paper from wood pulp, rather than rags. Mills could use hydroelectric power to grind low-grade trees into pulp to produce paper. Hector Clergue built such a mill at Sault Ste Marie, and the CPR tycoon Van Horne acquired another by squeezing the entrepreneur John Foreman out of his company, Laurentide Pulp. The first prominent Québecois entrepreneur, Alfred Dubuc, built his *Compagnie de Pulpe de Chicoutimi* because, as he admitted to his banker, "*Je n'ai pas d'argent.*"[40] Established lumber barons, including matchmakers Eddy and Booth, also diversified into pulp and paper.

This period also saw the beginnings of Canada's minerals industries. Discovering iron ore near his Sault Ste Marie mill, Clergue formed Algoma Steel Co. to mine and refine it and the Algoma Central Railway to ship it out. Samuel Ritchie gambled on the discovery of low-grade copper and nickel ores in

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[40] Bliss (1986) p. 323.

Sudbury, and won hugely when the Boer War pushed prices up sharply. A takeover of Ritchie's mining operation and an amalgamation with several other mining and smelting companies organized by Robert Thompson's smelting firm created International Nickel. When formed in 1902, it was the world's largest nickel producer. The CPR also entered the field, forming the Consolidated Mining and Smelting Company of Canada, or Cominco Ltd.

The CPR diversified, in part, because freight rates fell as the Manitoba entrepreneur William Mackenzie and his partner, Donald Mann, strung bits of railroad together to compete with the CPR in its most lucrative runs. This competition ultimately lowered rail shipping costs substantially, providing further scale economies.

Millions of new immigrant farmers were also soon in business. Canada quickly became the world's largest wheat exporter, and Winnipeg the world's largest commodity exchange. Rising farm income created millions of new aspiring middle class consumers. The semi-literate Patrick Burns built a huge beef packing empire based in Calgary.

Selling consumer goods across the much expanded country built more fortunes. The barely literate Irish immigrant, Timothy Eaton, built a nationwide catalogue department store business that bypassed wholesalers and used the railway system to deliver goods either to branch stores or directly to consumers. Replacing the declining staples wholesale businesses, Eaton's and its imitators - Robert Simpson and Charles Woodward, and of course the Hudson's Bay Company - would dominate Canadian retailing for the next century.

And new information industries arose as the populace grew more educated and economically active. John Bayne Maclean, a clergyman's son, launched the *Canadian Grocer*, Canada's first weekly newspaper. He quickly launched a succession of other newspapers: *Hardware and Metal, Books and Notions*, *Dry Goods Review*, and *Canadian Printer and Publisher*. His main surviving ventures are the *Financial Post* and *The Busy Man's Magazine*, reticently renamed *Maclean's*. The Southam family used profits from their *Spectator* to acquire a steel company, printing plants, and a chain of newspapers in other cities.

Finance and Growth

King and Levine (1993) demonstrate a marked correlation between the development of a country's financial system and its economic growth. Canada's financial system under MacDonald consisted of an anemic stock market and banks adhering religiously to the real bills doctrine, lending only for trade credit. Naylor (1975) argues that this adherence had substantially slowed growth by precluding loans for capital. However, by the end of the Laurier years, financial institutions were lending to all manner of businesses and the stock markets had seen two sustained waves of IPOs.

Up to the late 19th century, new ventures were predominantly financed with some mixture of family money, government subsidies, and the retained earnings of existing companies. Both corruption and genuine entrepreneurship had built sizable family fortunes. The largest included Maritimes shipping dynasties, heirs of the Montreal fur traders, and a handful of old Loyalist families. Hugh Allan made another fortune off his vast ranches in Alberta as meat production shifted west. Alexander Tilloch Galt, whose family had helped settle English immigrants in both Upper and Lower Canada in the 19th century by buying land from Loyalists and reselling it to settlers, repeated this model in Alberta with more success than in either previous venture. Canadian lumber barons, such as John Hendry of New Brunswick and the Maclaren family of Québec, began major operations in the new provinces. The tycoons who built, supplied, and operated the CPR and other railroads also acquired vast wealth. And wealth from past government connections created other lasting family fortunes. These assemblages of capital, and their owners' desire to diversify, helped launch new industrial ventures across Canada.

Laurier had originally criticized MacDonald's CPR subsidies, and eschewed subsidizing industry until late in his final term. But provincial and municipal governments had no such compunctions. A government-subsidized railway into Northern Ontario in 1902 brought a fabulous return, as minerals were discovered all around it, and is still used to justify publicly-financed development schemes. Gilbert Labline and Noah Timmins developed Hollinger Mines. J. P. Bicksell took over Porcupine Mines after its original owners were imprisoned. These firms, and the new Dome Mines, fueled a second wave of penny mining stock issues. Over five hundred new mining companies were listed in Toronto to meet investor demand at the end of the new century's first decade.

The mining business built more fortunes when gold was discovered, first in British Columbia in the early 1890s and then in the Yukon in 1898. A booming industry of fraudulent penny stock IPOs sprang up in Toronto, fleecing investors from across Canada and around the world. Two additional exchanges were formed in Toronto to handle the boom.[41] Despite the endemic fraud, Canada now had stock markets that attracted capital from all over the world.

Canada's securities markets and financial system had now developed to the point that growth through stock and debt financed mergers and acquisitions became possible. Thus, George Cox and his partner, the former Prime Minister MacKenzie Bowell, who ruled briefly between MacDonald and Laurier, built National Investment Co. through an M&A program. In fact, the early 1890s constituted Canada's first M&A wave. Figure 4 shows M&A activity from the first Canadian records to the present, and reveals a distinct surge in this period.

[Figure 4 about here]

Virtually all of the new companies had controlling shareholders, so a takeover or merger usually required buying a private family company or buying a control block of a traded company from an existing dominant shareholder. Also, much M&A activity involved buying out small-scale family controlled firms, and merging them into growing national companies.

Max Aitken's Montréal Trust and Monty Horne-Payne's British Empire Trust issued bonds in London to financing Canadian M&A. Other M&A

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[41] See Armstrong (1997) for details.

entrepreneurs used acquirer company stock to buy targets. A domestic securities industry grew fat off the proceeds of public issues as domestic demand for investments rose.

Venerable family firms seemed in decline. George Cox, despite the obvious incompetence of all his sons, entertained visions of a continuing the Cox dynasty. In 1905, James Henry Gundy and George Herbert Wood quit Cox's Dominion Securities to form Wood Gundy Ltd., which quickly grew to dominate the securities industry. Banks and insurance companies, as well as trust companies and the new securities firms, directed Canadian savings into industrial ventures *via* bonds, preferred stock, and common stock.

These developments permitted a second wave of mergers and acquisitions just before the First World War. By raising cash through bond issues *via* their securities houses, raiders could finance corporate takeovers. By swapping shares, they could undertake mergers. Figure 4 shows a second burst of M&A activity in the early 20th century.

In 1899, Henry Melville Whitney issued shares to consolidate several collieries into Dominion Coal, and then to diversify into steelmaking with Dominion Coal and Steel. The Cox family responded by setting up the country's first pyramid group, with public shareholders holding minority interests in Crow's Nest Pass Coal, Canada Cycle and Motor Co., and a host of other firms. Panics in 1903 and 1907 soured many of the old families on equity holdings, but public demand continued.

Openness

That trade openness encourages development is well established. See e.g. Bhagwatti (1998). The role of financial openness is more controversial. Bhagwatti cautions that financial openness leads to financial instability, and that proponents of globalization should be content with trade openness. However, Henry (2000, 2000a) shows that modern day emerging economies experience investment booms upon opening their financial markets and institutions to the global economy.

To subsidize the CPR, MacDonald needed more government revenues. The main source of public funds at this time was the tariff. MacDonald's Tories therefore proclaimed the National Policy – tariffs ultimately averaging 35% across the board, ostensibly to promote rapid industrialization by restricting imports. The National Policy is thus a genuinely classical example of import substitution. It remained in effect, in one form or another, until the post World War II trade liberalizations. Canada's success under this regime is probably the most important argument advanced by later proponents of import substitutions, such as Prebisch (1971).

However, Canada had no major restrictions on capital inflows or outflows during its high growth period, for the country was on the gold standard. Despite the rapid financial development within Canada, the big push leaned heavily on foreign capital. More foreign investment flowed into Canada per year *in absolute terms* during the Laurier boom than into the United States. This capital, mainly from Britain, but to a lesser extend from the United States, funded waves of startups, expansions, and corporate takeovers that reshaped the economy utterly.

Again, the groundwork for this vast capital inflow lay, to some extent, in the corrupt institutions of the previous two decades. MacDonald's revised Patent Act of 1872 protected US U.S. patent holders with operations in Canada; and his National Policy blocked US exports. The result was a sustained wave of FDI, as US firms set up shop to protect their patents and then expanded to serve the domestic market. For example, Alexander Graham Bell entrusted his father, Alexander Melville Bell, to set up a Canadian telephone company - American Bell of Boston held Bell's patent from the 1880s on. Thus trade barriers and selectively weak property rights actually stimulated capital inflow.

Subsidies to foreign capital also played a role. Canadian municipalities everywhere, eager to attract such high tech ventures, offered increasingly competitive "bonuses" – up front cash subsidies – to manufacturers. A multitude of bidding wars, often financed with municipal bonds, erupted across the country, with *The Monetary Times* reporting in 1895 that

> American firms of every description 'seeking a new site' or 'wishing to extend their business by establishing a Canadian branch' have only to make public their designs and be inundated by letters from Canadian municipal authorities.[42]

Despite their success in generating foreign capital and branch plants, the overall efficacy of these industrial policies as a development strategy remains a topic of debate. For example, Naylor (1975) argues that their side effect was Canada's marginal position in the wave of technological innovation in the 1890s and early 1900s.[43] Bliss (1986) argues that the National Policy "created distorted hot-house growth in manufacturing that had serious, often harmful consequences," and cites a vast overcapacity in chic high-technology industries like textiles and steelmaking. Irwin (2002) argues that rapid growth in Argentina and Canada, two high-tariff, high-growth outliers in the late 19th century, depended on commodity exports, not industrialization through import substitution. He argues that the tariff was a revenue source, but never a spur to industrialization.

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[42] Quoted by Bliss (1986) p. 304.

Another distortion was smuggling, which became a major industry. Although this had some beneficial results, such as fueling the growth of Fort Whoop-Up in the part of the Northwest Territories that would become Alberta, its effects were probably mainly negative.

The National Policy also fostered inefficient and high cost production. Few Canadian firms were capable of exporting. Notable exceptions were the farm machinery firms of Hart Massey and Alanson Harris, both based on Canadian patents and American prototypes. Both prospered as Canadian farming modernized. By 1891, when the two great family firms merged, both had robust export businesses in Argentina, Australia, and Great Britain. Administrative technicalities initially limited their US exports.

But, reciprocal trade barriers also stymied creative entrepreneurs. Thus, J.L. Kraft moved his cheese business from Ontario to Chicago in 1905. Over the longer term, the public's identification of tariffs with Canadian nationalism, fueled by the MacDonald Tories and later picked up repeatedly by populists and socialists, would emotionally charge trade and foreign investment policy discussions for a century.

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[43] Naylor (1975), Vol. II p. 47.

As the big push ended, Canada became a capital and technology exporter. Fresh from building the now world famous Canadian Pacific Railroad, the longest in the world, other railroad barons looked abroad, setting up railways in Brazil, Cuba, Guatemala, Mexico, Spain, and the West Indies. Once established in those countries, they moved on to trolley systems, electric power and light systems, and sundry other enterprises. Canadian banks followed into these new markets. The old Cox group, now ably managed by the railroad man Mackenzie and advised by the legal virtuoso Zebulon Lash, also rapidly expanded into Latin America, Spain, and the Caribbean. In 1912, Mackenzie and his chief engineer, F.S. Pearson, combined these holdings into Brazilian Traction, also called *o pulve Canadenses* (the Canadian octopus). The Mackenzie family still controls one of Mexico's main pyramidal corporate groups.

Initial Corporate Ownership Structures

As the stock market deepened, widely held industrial firms also appeared. The Hudson's Bay Company generally had no single dominant shareholder, though its Chief Factor often seemed to rule the company and its shares did not trade on exchange. But Canada now had numerous small, widely held mining companies and two widely held giants. Canadian Pacific was widely held from its inception; and by 1900, Bell Canada too was widely held.

However, many large Canadian firms now belonged to pyramidal corporate groups – structures in which a family or closely held apex firm controls other listed firms, each of which control yet other listed firms, and do on. The first such group, that of the Cox family, established in 1899, served as a model. Still, Canadian pyramid groups were usually not terribly complicated, at least relative to their modern descendents. Most had only a few tiers and a handful of firms. The economic motivations of their builders are also fairly straightforward.

Prior to the big push period, and early into it, old money families and railroad tycoons diversified their wealth by venturing into different industries. As the stock market developed, and public shareholders became a significant source of capital, selling minority interests in these ventures to small investors became increasingly common. Listing controlled subsidiaries let wealthy families control much larger pools of capital than their own wealth, yet retain complete control. It also let them diversify more extensively while operating on a larger scale in each industry. Thus, began the simplest corporate groups.

Larger corporate groups were often the result of takeover waves. From 1909 until 1912, when the economy abruptly slowed, 275 of Canada's largest firms coalesced into 58 in half a billion dollars worth of M&A transactions. The most active corporate acquisitor of this period was Max Aitken, who assembled Canada's largest pyramid group. The son of a Presbyterian minister, he rose through the ranks of Royal Securities, ultimately running the firm for its controlling shareholder, John Stairs, heir to the old Nova Scotia merchant family. In 1906, he used his earnings to buy Montréal Trust, and then used that firm to take over Royal Securities. Aitken issued debt in London on a huge scale and used the proceeds to buy steel mills, cement companies, power companies, and other firms all over Canada. In this way, he built the Steel Company of Canada from Montréal Rolling Mills, Hamilton Steel and Iron, Canada Screw, Canada Bolt and many other smaller firms. Aitken also formed Canada Cement out of twelve of the country's thirteen Portland cement makers. At the end of the big push years, Aitken, always a passionate imperialist, bought the title Lord Beaverbrook and retired to London.

Larger corporate corporations and groups also resulted from financial distress. The National Policy produced enormous overcapacity in stylish industries, with many plants run by certifiably unskilled managers. Many of these listed to raise capital, but their on-going overcapacity problems depressed their share prices, inviting the attention of corporate raiders. Thus, A. F. Gault amalgamated about half of the country's cotton mills into Dominion Cotton Mills by 1890, and David Morrice amalgamated most of the rest into Canadian Colored Cotton by 1892. After fairly overtly fixing prices for many years, the two eventually merged into Dominion Textile in 1905.

Acquirers of this era often bought out target controlling shareholders with minority blocks of stock in their other controlled companies. The target insiders who received these shares would sell out to diversify. The result was more complicated structures of less narrowly held listed companies controlling other listed companies. Although Aitken had access to Lon don capital, other Canadian acquirers used the retained earnings of one firm to take over another. Obviously, retained earnings go farther if minimal control blocks are acquired, leaving the target listed after its successful takeover.

It is in this period that we can first construct a broad, though approximate, cross-sectional representation of the ownership structures of large Canadian companies. Figure 5 classifies the top sixty-six firms by ownership structure in 1902, mid-way through the big push, and the top one hundred in 1910 – near the height of the boom.

It shows that four widely held firms account for forty-six percent of large corporate sector assets in 1910, but that this fell to twenty-nine percent by 1910. In both years, the bulk of these assets belong to two widely held firms – Bell Canada and the CPR. The Bell family had sold out prior to this, and the CPR was widely held from its inception. By 1910, the greatest part of the corporate sector, forty percent by assets and forty-five percent of firms, belonged to pyramids controlled by wealthy individuals or families. A substantial number of smaller firms are independent corporations controlled by a family or individual. About one fifth of the corporate sector is foreign controlled, primarily by Britons. We are unable to ascertain the ownership of many firms in these early years. We suspect that most of these are indirectly controlled by wealthy families.

[Figure 5 about here]

V. The Evolution of Corporate Ownership

We replicate Figure 5 for subsequent time periods – every ten years until 1960, and roughly every five years thereafter. We occasionally substitute an adjacent year because of missing data. The main problem is that we do not have Statistics Canada Directory of Inter-corporate Ownership date for every year. These results are graphed in Figure 6.

[Figure 6 about here]

First, the incidence of firms whose control we cannot trace falls off quickly. From 1920 on, the fraction of assets belonging to such firms is near negligible, and the fraction of such firms can be ignored from 1930 on.

State control of corporate assets begins with the First World War and steadily grows through the 1990s, when it abruptly falls off. This reflects the privatizations of Air Canada, Canadian National Railways, PetroCanada, and many other state-controlled enterprises by the Mulroney Tories. Note that the number of state-controlled enterprises rose sharply in the 1970s, reflecting the more socialist policies of the Trudeau liberal governments and the many nationalizations they undertook, and then falls back in the 1990s as the privatizations go ahead.

Multinational firms have always been important in Canada. In 1902, foreigners controlled about ten percent of the country's large firms, amounting to about twenty percent of corporate assets. Both figures grew to about thirty percent by the 1930s, and fluctuate around that figure for the remained of the century. Foreign control peaks, in terms of number of firms, in the 1970s. This provided the Trudeau Liberals political justification to nationalize numerous companies, as this would keep them out of foreign control. The sharp rise in foreign control in 1998 is due to a few high profile transactions – the takeover of Labatt's Breweries by the Belgian firm Interbrew and the United States firm Verizon's acquisition of a control block in Telus. The nationality of the typical foreign owner also changed. At the beginning of the century, foreign owners were usually British. By the century's end, American owners predominated.

Freestanding widely held firms become more common as the century progresses until the mid 1960s. Thereafter, widely held firms become steadily rarer and account for a diminishing fraction of corporate assets. This pattern is more evident if we drop firms whose controlling shareholder is unknown, foreign controlled firms, and state owned enterprises. Figure 7 replicates Figure 6, dropping these.

[Figure 7 about here]

The importance of family controlled pyramid groups, including those controlled by single wealthy individuals, follows precisely the opposite pattern. Family controlled pyramids are commonplace at the beginning of the century, recede markedly by mid-century, and then resurge at the century's end.

This pattern requires explanation. We first provide a more detail about the rise and fall of different family and widely held firms over a century of business cycles. We then consider various reasons why ownership structures might change over time. Since institutional changes and business cycle conditions often correspond to political events, we refer to periods by the name of the current prime minister. Table 1 lists the terms of office of twentieth Canadian governments.

[Table 1 about here]

Ownership Structure Changes over a Century of Business Cycle[44]

The merger waves, shown in Figure 4, each correspond to abrupt changes in ownership structures. The main merger waves are: the decades surrounding the beginning of the 20th century, the late 1920s, early 1960s, late 1960s, late 1980s, and late 1990s. Figure 3 shows that each was also a business cycle peak. Before considering explicit hypotheses about why ownership structures changed as they did, we provide some background details about conditions over the decades and the associated changes in corporate ownership.

The first merger wave was actually a prolonged period of intermittently high takeover activity spanning the Laurier boom - from the mid 1890s to 1911. Under Laurier's Liberals, new technology and British capital financed waves of takeovers in steel, cement, and other (then) cutting edge industries. Figure 5 shows that these transactions markedly increased in the importance of pyramid groups – new ones, like the Aitkin group, and pyramids built on old family money, like that of the Coxes.

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[44] What follows is drawn from Bliss (1986), Francis (1986), Khemanie et al. (1988), Maule (1966), Naylor (1975), Newman (1975, 1981, 1991, 1998), and Taylor and Baskerville (1994). The analysis by Bliss is especially useful throughout this section, and a general reference is gratefully acknowledged.

The subsequent slower growth period, from 1913 though the mid 1920s, saw a decline in the importance of family pyramids. As Figure 6 shows, part of this corresponds to an upswing in state-owned enterprises. Ontario businessmen lobbied successfully for a state-owned power company, now called Hydro One, to provide subsidized electricity. Laurier, previously opposed to all business subsidies, grew pragmatic and agreed to subsidize the old Grand Trunk Railway to build second transcontinental line. William Mackenzie, with Cox money and subsidies from Manitoba, undertook a third. His Tory successor, Prime Minister Borden, poured in more subsidies, and by 1915 the National Transcontinental Grand Trunk Pacific and Canadian Northern were complete. Both were soon hopelessly insolvent, but "too big to fail". After a series of bailouts, Borden bought both in 1917 to form the state-owned Canadian National Railway (CNR).

By the mid 1920s, conditions slowly improved, and new business opportunities emerged. The most significant was Prohibition in the United States, enacted in 1919, which outlawed the manufacture, sale, or transport of alcohol, but permitted its consumption. Sam Bronfman, a Saskatchewan innkeeper, set up a mail order liquor business for thirsty Americans. In a few years, he owned a chain of distilleries along the United States border. Bronfman used his newfound wealth to build a new pyramid group, and was soon the most powerful tycoon in Canada.

Takeovers in the late 1920s boom, like the Laurier years, built new pyramid groups. Max Aitkin had retired to London as Lord Beaverbrook, and his former associates took control of his various companies. One of the most successful, Isaac Walton Killam, built the Killam group. Nesbitt, Thompson organized the publicly traded Power Corporation to hold utilities in a pyramid group. Other major new groups were Canadian Pulp and Power Investments and Hydro-Electric Bond and Share Corp. A very important pyramid builders of this period was the twice Prime Minister Arthur Meighen, who issued debt to acquire control blocks for his Canadian General Investment Trust group.

But despite these new groups, the late 1920s boom, unlike the Laurier years, saw a net erosion of pyramids. The 1920s boom, like the Laurier years, created new high technology firms – this time in industries like automobiles, airplanes, metallurgy, motion pictures, office automation, and paper making. But now, many were stock financed and widely held early on. Most disappeared in mergers, also financed with stock, eroding control blocks in the acquirer firms.

A global boom favored Canada, fueling demand for paper and minerals. MacMillan, founded by a forestry student who stayed in British Columbia after a summer job, soon dominated forestry. International Nickel developed new alloys that locked in its global dominance. Numerous other mining and minerals refining companies sprouted up. Thus, more new widely held firms joined the ranks of the top corporations.

The Great Depression hit Canada hard in the 1930s. Deflation reduced the cost of living by over 20% from 1929 to 1933, but wages fell much less.

This, and moribund demand, depressed most industries – automobiles, base metals, oil, railroads, pulp and paper, and steel collapsed. Many old family firms failed in the 1930s, their assets bought up by others with money.

But mining prospered because investors viewed gold and silver as safe-haven assets. By refining these metals from composite ores, the widely held firms Noranda and Cominco grew, increasing the importance of the widely held sector.

New family fortunes also arose in the 1930s. Armand Bombardier's "snowmobiles" hit the market in the late 1930s. Kenneth Colin (K.C.) Irving built his family store into a new pyramid group of gas stations, busing, trucking, auto sales, and bus making. Roy Jodrey, who first lost a considerable fortune, built his United Service bus line, as well as a chain of gas stations and auto dealerships, into a new pyramid. John and Alfred Billes built Canadian Tire into a large national retailer during the 1930s. Roy Thompson overcame a bad credit record to buy a radio station and then a newspaper. After paying back taxes, beverage exporters formalized their market shares in the post-prohibition United States. Edward Plunkett (E.P.) Taylor built up a new major player, the Brewing Corporation of Canada. Charles Trudeau sold his chain of gasoline stations and Automobile Owners Association Service Clubs to buy stocks precisely at the 1932 low, greatly magnifying his already creditable fortune. This provided his son, Pierre, the life of a millionaire playboy.

Clarence Decateur (C.D.) Howe, an MIT graduate and professor at Dalhousie University, built a huge empire of grain elevators, and then lost it.

C.D. Howe was well disliked – the CPR president remarked, "He is not able to deal with ordinary individuals except on the basis of a superior dealing with inferiors."[45] However, as King's "Minister of Everything", Howe was the most powerful force in the economy through the middle of the century.

During World War II, Howe ran the centrally planned wartime economy as Minister of Munitions and Supply. By 1945, with European and Asian factories in ruble, Canada was the world's third largest economy by some measures. A wartime alliance with the Soviet Union, and memories of the Great Depression amid centrally planned prosperity, brought votes to the socialist Cooperative Commonwealth Federation (CCF), later renamed the New Democratic Party (NDP). The CCF outpolled both the Liberals and Tories in 1943, and took power in Saskatchewan in 1944. This, even more than the Progressives, deeply disturbed the country's polity. King countered by moving the Liberals leftward, absorbing moderate socialists to make the CCF disagreeably radical. In 1944, he let unions organize and compel collective bargaining, and made Howe Minister of Reconstruction and Supply.

After the war, Howe liberalized the economy despite the objections of the CCF and business groups wanting state enforcement of their cartels. A mass-privatization of wartime enterprises created yet more widely held firms.[46] The 1950s and 1960s in Canada were a near continual boom, though not as energetic as the Laurier years or late 1920s. After King retired, Howe served the new Liberal Prime Minister, Louis St. Laurent. His heavy handed use of War Powers to organize a major pipeline project in 1956 cost the Liberals the 1957 election. But Howe's legacy was an economy mostly organized by market forces, save for a string of grand nation building projects – a national airline, the trans-Canada highway, an aerospace program, a transcontinental oil pipeline, and the like.

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[45] Quoted in Bliss (1986), p. 443.

[46] Howe retained state control in key industries, keeping Polymer, a plastics manufacturer, and El Dorado, a mining firm with uranium holdings he had nationalized in 1944.

The new Tory Prime Minister, John Diefenbaker, an upstart lawyer born in a shack in rural Saskatchewan, had little use for great nation-building schemes or business lobbyists. The decade and a half following the war was probably the apogee of free market philosophy in Canada. Growth slowed after 1957, but revived in 1961 and remained brisk through the sixties.

European and Japanese reconstruction fueled demand for metals and wood. Several new mining companies emerged during this era. The Iron Ore Company of Canada was organized by Hollinger, Timmins, and the Hannas family of Cleveland. Gunnar Gold Mines, run by Gilbert LaBline, whom Howe fired from El Dorado, developed a huge uranium mine. Joe Hirshhorn struck uranium, and sold out to Rio Tinto and Rio Algom. A Czech migrant farm worker, Stephen Roman, bought claims near Hirshhorn's operations and found more uranium. His Consolidated Dennison Mines quickly became a major producer.

Many older companies also became widely held after the war. MacMillan took over Bloedel, Stuart, and Welch to form MacMillan-Bloedel, which became widely held. Alcan Aluminum became widely held after a US court ordered its parent, Alcoa, to divest some assets. Hiram-Walker, Hydro-Electric, Fraser, Shawinigan Water & Power Co, and Great Lakes paper also passed from family control to become widely held.

But other pyramid groups were on the rise. The Sobey and Steinberg families built groups from land development and food retailing. Simard, Demarais, and Basset built new corporate groups in Québec. Older empires also flourished in the war's aftermath – the Irving group in New Brunswick, the Billes family's Canadian Tire, Roy Thompson's media group, and the Bronfman's distilleries.

The most important creation of this period, however, was the Argus Group, a vast pyramid run by EP Taylor, whose Canadian Breweries provided a bountiful cash flow. He expanded into food with Canadian Food Products and soft drinks with Orange Crush. He took control of Massey-Harris and, with auto glass heir Eric Phillips, took over Standard Chemicals. In 1945, he reorganized his holdings, plus William Horsey's Dominion Stores and other firms, into a classic pyramid. Argus Corporation, the apex firm, was 50% owned by Taylor, with Horsey, Phillips, and several others owning lesser stakes. Taylor believed all industries evolved towards monopoly, and sought to position Argus to benefit from this.

George Black, a professional manager, helped Taylor grow Argus rapidly. Argus expanded into Europe, merging the British tractor firm Ferguson into Massey-Harris. The group acquired control of a posy of family forestry firms, consolidating them into British Columbia Forrest Products, and entered broadcasting by taking control of Standard Broadcasting. Argus subsidiaries were also aggressive acquirers. Standard Chemicals took control of Dominion Tar and Chemical (Domtar) and of pulp and paper companies like St. Lawrence Corporation and Donnaconna Paper. British Columbia Forest Products took over a series of family-controlled firms. Like the Galts in the 19th century, Taylor got into the land business too, building the new city of Don Mills, Ontario, as a single project.

The period saw a changing of the guard in top corporate offices. Isaac Walton Killam and Sir James Dunn both died in the mid 1950s. Howe decided that Algoma should become widely held, and sold Dunn's shares in several small blocks. Killam's heirs broke up that group and sold out. Widely held firms now dominated the large corporate sector – despite a series of nationalizations by the Québec government and more foreign takeovers, like that of the widely held Algoma Steel by Mannesmann and of Westcoast Transmission by Philips Petroleum.

The Argus pyramid remained the largest, though Taylor had retired. A team of professional managers, led by Albert Thornborough, a Harvard MBA, ran Argus well, with Canadian breweries, Dominion Stores, and Massey-Ferguson all growing at sustained double-digit rates. By the 1960s, Massey Ferguson was a major multinational in its own right.

Fueled by its oil and gas wealth, Alberta was now a major center of economic activity. New widely held companies, like Alberta Gas Trunk Lines, Dome Petroleum, Hudson's Bay Oil and Gas, and others rose to national prominence. Vancouver also became a major center to rival Toronto and Montreal.

However, Canada was changing. In a landmark 1965 book entitled *The Vertical Mosaic*, John Porter (1965) argued that an Anglo-Scots elite still held virtually all the levers of economic and political power in what was now a distinctly multicultural country. The need to dislodge this elite would become, in many guises, the central political issue of the next quarter century. Increasingly educated Québécois demanded to be *maîtres chez nous* – "masters in our own house". The immigrants populating the increasingly economically important western provinces (and Toronto) were neither British nor French, and many felt alienated from the whole national debate.

The Liberal Lester Pearson succeeded Diefenbaker in 1963, and launched a variety of social programs, including National Health Care. Pearson's economic philosophy was probably not greatly different from Diefenbaker's, but his minority government dependent on the socialist N.D.P. This began a new trend towards greater state intervention in the economy. Pearson stepped down in 1968; and the wealthy Université de Montréal law lecturer, Pierre Eliot Trudeau, won the Liberal leadership and took power. Trudeau saw himself as a scholar, interested in philosophy, social justice, and constitutional law. He was profoundly bored by economics, though he audited a Harvard class by John Kenneth Galbraith.

Figures 6 and 7 highlight an abrupt turning point at this time. The steady rise of widely held firms reverses. A few, like Hunter Douglas, failed. But the main reason for this reversal seems to be a flurry of control block acquisitions by new and old pyramid groups.

In 1978, Conrad Black inherited a block of Argus, acquired control of the apex company in a series of complicated deals, and then dismantled the entire group.[47] Black sold control blocks into the rising merger wave of the 1980s – some to other wealthy families and others, like Massey Ferguson, to the public. Black retained yet others, including Dominion Stores, in his Hollinger group, which he built into an international newspaper group. Lord Black remained a power in the newspaper business until overwhelmed by allegations of scandal in the early 2000s.

Sam Bronfman passed control of his empire to his sons and grandsons, but his nephews had to be bought out. Sam's brother was a partner early on, and his nephews therefore had a legitimate claim.[48] Thus, Edward and Peter Bronfman obtained a cash hoard to establish a second, separate Edper Bronfman pyramid that would eventually overtake the first.

The Edper group grew rapidly through the 1970s and 1980s, acquiring control of several large previously widely held firms, including Brascan and Noranda. Noranda, in turn, took control of British Columbia Forest Products, a former Argus firm, and amalgamated it into Crown Forest Products to form Fletcher Challenge Canada. Noranda also took a 48% control block in the previously widely held MacMillan Bloedel. Meanwhile Brascan took a control block in Great Lakes Power, also formerly widely held.

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[47] His motives are unclear, for diversification was not yet out of vogue. Newman (1998) notes that E.P. Taylor, the architect of Argus, fired Conrad's father, George Black. George invested successfully through the 1960s and put the money into Argus, perhaps contemplating a takeover.

[48] The two Bronfman branches separated in 1952, establishing two trusts, Cemp and Edper. In early 1960s, Sam purchased Seagram shares from Edper at lower-than market prices, causing resentment. The final split occurred in 1968, when Edper tried to acquire Great-West, which was eventually taken over by the Desmarais Group.

Other widely held firms joined other great pyramid groups during the Trudeau years. The Power group took a control block in Dominion Glass. The Reichmanns bought much of Taylor's Toronto real estate. Their flagship Olympia & York took control of Abitibi Paper, Abitibi-Price, and Gulf Canada – the last after its parent spun off its Canadian operations.

And family firms took over widely held firms too. Molsen and Labatt's, together, took control of the formerly widely held Canada Malting. The Gordon family assembled a control block in Canadian Corporation Management.

The Trudeau Liberals sought a just society, and distrusted markets. An alphabet soup of federal agencies began micro-managing "strategic industries", like energy and the media. Complicated systems of taxes and subsidies redistributed income across corporations and regions. By the mid 1980s, the economy was floundering and anger in Québec and the western provinces escalated.

In 1985, Brian Mulroney's Tories routed the Liberals and redirected the country back onto a free markets path. In 1987, the Tories relaxed the rules forbidding banks from owning other companies, and they quickly acquired control of all the main trust companies, investment banks, and other financial services companies. And in 1989, Mulroney signed a free trade agreement with the United States, finally burying MacDonald's National Policy. But many Trudeau era programs were entrenched. Cutting regional and industrial development funds, tax advantages and business subsidy programs proved politically impossible. Dissention within Tory ranks over this issue fractured the party, and the Liberals, under Jean Chrétien, and later Paul Martin, held power after 1993.

The Mulroney Tories ran Canada's second mass privatization, floating Air Canada, the Canadian National Railway, PetroCanada, Polysar Chemical and Energy, Westcoast Energy, and other state-owned enterprises. Though often lengthy and multistage, all these privatizations eventually created freestanding widely held firms.

But the great family groups more than made up for this. The Reichmanns took control of Hiram Walker Resources. Interprovincial Pipe Lines took control of Consumer's Gas, and was then acquired by the Reichmann group. The Edper group took control of Falconbridge and Fraser, and expanded its existing businesses with debt financing.

In the early 1990s, both the Reichman and Edper Bronfmann groups were overleveraged. The Richmanns lost some of their properties to creditors; and Edper divested John Labatt & Co. as a widely held firm, though it was later taken over by a Belgian conglomerate.

After the Tories enacted an unpopular consumption tax, the Liberal Prime Minister Jean Chretien took power in 1993. Chretien was a Trudeau liberal, but the party was now more moderate, and finished the incomplete privatizations of Canadian National and PetroCanada.

Newman (1998) makes much of a new elite taking charge of Canadian business in the 1990s, writing of the death of the "Jurassic Canadian Establishment." He correctly notes (p. 5) that the old elite

> "practiced insider trading with exuberance, feathered each others' nests with considerable grace, maintained their workers in patronizing insecurity, and, with the instincts of an unregulated oligarchy, gleefully forced competitors out of their misery" and "operated in what was a virtually risk free environment ... nurtured by government subsidies having formed a cozy marriage with the political establishment."

Several grand old families, such as the Eatons and Woodwards did indeed reap the fruits of long years of mismanagement in the 1990s, and largely disappeared from the headlines. Newman may be right that the old establishment lost influence because of its British ideal of "lovable dimness" (p. 13).

But Figures 6 and 7 attest that Canada at the end of the 20th century looks much as it did at the beginning. Much of the domestic private sector consists of large family controlled pyramid groups.

The lineal descendents of Sam Bronfman were ruined by their foray into Hollywood, but the Edper Bronfman group remains the largest in the country. The Reichmann group, after stumbling badly in British property investments, recovered and still ranks second. The Thomson group acquired control of the venerable Hudson's Bay Company. The venerable Power group is now controlled by the genuinely entrepreneurial Paul Desmarais.

New corporate groups have arisen. Jimmy Pattison built a used car lot into a large business group. Peter Munk, a penniless Hungarian Jewish refugee, built a huge corporate empire. Tainted with insider trading allegations, he moved to the South Pacific to build a hotel empire. Plowing his hotel profits into the Canadian mining firm Barrick restored his standing, but his positing bail for the Arab arms dealer Adnan Kashoggi troubled some. Semour Schulich, another new baron of Canadian business, joked famously "reputation is character minus what you can get away with."

Thus, while merger activity corresponds to business cycle peaks, no clear pattern emerges relating ownership structure changes to either. The boom of the 1920s and the prosperous mid-century decades correspond to a rising importance of freestanding widely held firms. Families cashed out into what were probably overvalued markets, and new widely held firms grew rapidly. Entrepreneurs tapped public equity to build new firms in industries like mining. Boom and bust alike increased the importance of widely held firms through the 1960s, and then boom and bust alike reversed this. Family pyramid groups grew rapidly in the 1970s and early 1980s. A brief resurgence raises the profile of widely held firms in the late 1980s and early 1990s, but only slightly. This reflects a mass privatization that created new widely held firms, even as others were absorbed into pyramid groups and a brief bout of financial problems that pruned back two large pyramid groups.

Thus, although merger waves are unquestionably periods of more rapid change in ownership structure, as are business cycle troughs, no clear pattern emerges. The conditions under which booms and busts raised diffuse ownership do not seem systematically different from those under which diffuse ownership faded away. Understanding the historical determinants of corporate ownership structures therefore requires more nuanced considerations of the institutional changes affecting these periods.

We therefore put under the microscope changes in financial development, tax policy, competition policy, labor rights, shareholder rights, industrial policy, trade policy, and cultural policies. Our objective is to see if any of these track changes in ownership structure.

Financial Development

Rajan and Zingales (2003) describe a "Great Reversal", in which many countries' financial systems shrank over the first part of the twentieth century, and the rose again in the century's last two or three decades. They report such an event for Canada, measuring financial development by the size of both the banking system and stock market. Figure 8 charts their measures of financial development for Canada and the United States through the century.

[Figure 8 about here]

Canada's banking system underwent a profound crisis in the 1920s and another in the 1930s. World War I inflation ushered in several years of deflation, bankruptcies, and bank failures. Much merger activity in the early and mid 1920s involves government orchestrated consolidations of healthy banks with distressed ones in the early 1920s. By 1928, Canada had only ten chartered banks, down from thirty in 1910. The last narrowly held family bank, Molson's Bank, was taken over by the Bank of Montréal. The downturn wiped out several of the professional managers running former Aitkin group firms and several old family fortunes, contributing to the decline in importance of family groups.

In the late 1920s, the stock market was effervescent, and clearly overvalued. For example, investors valued the troubled radio firm Canadian Marconi, with $5 million in assets, at over $130 million in 1928. Heirs to the family groups built by Massey, Dunsmuir, McLean, Simpson, and others sold out via public equity offerings. Again, this broadened the ranks of freestanding widely held firms.

Stocks collapsed in 1929, and unemployment rose. The new Prime Minister, R.B. Bennett responded to the crisis by leaving the gold standard. The dollar immediately fell precipitously, and foreign lenders called in their loans. Major investment houses, like McDougall & Cowans, Greenshields & Co., and Watson & Chambers, failed. To avert a financial collapse, the Bennett authorized banks and insurance companies, almost all now insolvent, to use "special valuation methods" to convince the public of their soundness.[49] Canada barely escaped a sovereign default through a National Service Loan, floated on wartime rhetoric in a huge advertising campaign. The top fifty stocks dropped an average of 85% from their October 1929 highs to their May 1932 lows.

For the next half century, the banking system was very stable. The 1967 revision to the Bank Act bestowed ten percent voting caps on all chartered banks – making it illegal for any single shareholder to own a stake larger than this. The politics surrounding this seem to be public concern about foreign control of

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[49] For details, see Kryzanowsky and Roberts (1993).

Canadian banks, or at least concern by important lobbying groups. The banking system remained highly regulated until the Mulroney Tories took power in the mid 1980s. They slowly unwound longstanding prohibitions on banks owning other financial services businesses. Over the next decade, Canada's five major banks took over all the country's large brokerage houses, underwriters, and trust companies.

All this is reflected in Figure 7, which shows bank loans declining as a fraction of GDP after the Laurier boom, and not surpassing 1913 levels again until 1970. In contrast, the US banking system actually expanded as a percentage of GDP until roughly 1938, and then slowly receded as the stock market grew more important. The economic importance of both countries' stock markets peaked in 1929 and again at about 1970. The Canadian stock market was much more important economically than the United States market in the 1920s boom and again in the 1950s and 1960s.

Thus, large Canadian firms grew steadily more widely held when the stock market was large relative the economy, and the banking system small. The shift back to more narrowly held ownership very roughly corresponds to a period when the stock market was less prominent and the banking system more important.

Beck and Levine (2002) show that both bank and stock market based financial systems can fuel growth. However, little is known about the weather the distributions of wealth and corporate control that emerges from such growth differ. Banks are thought to depend more on relationships in making financing decisions, and stock markets are more impersonal. It is possible that family business groups have a greater advantage when banks are more important, since a single relationship covers many firms. Daniels *et al.* (1994) show that Edper Bronfman group firms were substantially more leveraged than otherwise similar freestanding firms, perhaps consistent with this hypothesis.

However, the size of the financial system is not God-given. It depends on other institutional features of the economy. Relating ownership structure to the structure of the financial system only pushes the question out one level. What determines this? And what other factors might be in play?

Taxes

Taxes changed substantially over the century. One major change that might have affected the relative attractiveness of stocks was the introduction of a capital gains tax by the Trudeau Liberals in 1972. This corresponds to the abrupt decline of the stock market relative to the economy's size. Since this also corresponded to the beginning of a prolonged high inflation period, stocks probably rendered especially unattractive, as the tax applied to inflationary as well as real gains. However, the stock market did not resume its prior importance in the 1980s, when inflation abated. Moreover, several other events also occurred at approximately this time, so causality is hard to infer.

One of these events, also involving the tax system, was clearly related to corporate ownership diffusion. Canada had very high succession taxes in the middle of the century, but virtually no succession taxes, at least on very large estates, at the century's beginning and end. Could this have affected the viability of large corporate groups at different times?

Prior to World War I, Canada's main source of tax revenue was the tariff and its main public expense was industrial subsidies. However, the incessantly rising subsidies first Laurier, and then Borden, needed for what would become the Canadian National Railway, plus an accumulating war debt, forced the government to devise additional revenue sources. In 1916, parliament had passed an excess corporate profits tax to fund the war. When this lapsed, it enacted a permanent manufacturers' sales tax at six percent. Corporate and personal income taxes, enacted in 1917, rose sharply – top marginal rates for both soon surpassed fifty percent. To avoid double taxation, dividends and capital gains were exempt. In 1926, dividends became taxable personal income, but intercorporate dividends remained exempt, allowing pyramid groups to continue.

Unemployment relief was constitutionally a provincial matter, and the provinces all needed tax revenues. Ontario introduced a "succession tax" in 1892, and by 1894 all the other provinces followed suit. Although England introduced death taxes in the 18th century, many American states levied them from the 1820s on. Thus, succession taxes were decried as Americanization of Canada.[50] Although the original rates were in the five to ten percent range, by the 1930s top marginal rates were as high as thirty percent. Smith (1993) finds that succession duties accounted for a significant share of provincial revenues during the 1930s.

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[50] For example, Bayley (1902) writes that the "Ontario Act of 1892 was purely American in origin."

In 1941, the federal government enacted a federal succession tax to generate war revenue, but it was always envisioned as permanent tax. Rates rose quickly and approached provincial levels by 1947. That year, the federal government doubled the rate to fifty-four percent and offered half its take to provinces that withdrew their taxes. Seven did. Ontario and Québec retained their own succession taxes, which could be credited against federal tax.

These taxes took a substantial bite out of corporate groups as the business elite of the 1920s passed away. For example, both the Killam and Dunn estates were broken up to pay death taxes in the 1950s. The government's $100 million boon financed university expansions and established the Canada Council. To pay these tax bills, the heirs sold stock and a new cadre of widely held firms came into being. These included Calgary Power, once part of the Killam group, the Algoma Central & Hudson Bay Railway, formerly controlled by the James Dunn, and many other firms. Many large free standing family firms, for example Burns & Co., also became widely held upon the death of their patriarchs.

As governments expanded, federal income taxes and taxes in most provinces rose to Scandinavian heights. However, Alberta began competing for wealthy family investments by promising to rebate its share of the succession taxes collected by the federal government. This tax competition threw the entire succession tax system into disarray; and Trudeau decided to abolish it entirely in 1972. Inheritances were now tax-free income. In place of the old estate tax, the Liberals now taxed capital gains, including capital gains upon death. However, a huge loophole allowed the transfer of assets to a family trust, which deferred capital gains taxes for two generations. The Bronfman heirs escaped capital gains taxes entirely by moving their wealth out of Canada before capital gain taxes fell due on their family trust.

Thus, succession taxes seem to have played an immediate role in the break up of several large pyramid groups and the creation of widely held firms of their remnants. However, this too is hardly a complete explanation. The Killam and Dunn heirs could have sold their shares to other controlling shareholders, rather than the public. In the 1950s, public shareholders must have offered a better price. Succession taxes are probably part of the story, but only part. It may be that the absence of capital gains taxes caused small investors to be more generous before 1972, but this is far from clear.

Competition Policy

Demsetz and Lehn (1985) argue that product and factor market competitive pressures weed out firms with suboptimal ownership structures. If, for example, widely held firms have worse agency problems, as in Jensen and Meckling (1976), they might be more commonplace when product and factor market competition eases, but less evident in periods of brisk competition. This suggests that we examine the strength of competitive pressures at different periods.

Canada had no real antimonopoly legislation through most of the century. MacDonald's Anti-Combines Law of 1889 legalized price fixing by making restraints on trade actionable only if they "unduly" or "unreasonably" lessened competition. Thus, fairly overt cartels are a recurring feature of Canadian business history.

In particular, restraints on bank competition were acceptable. For example, the *Journal of the Canadian Banking Association* wrote in 1898 that

> "[T]here should be certain things universally considered unprofessional within our ranks. Giving service without profit or at an actual loss should be unprofessional. Solicitation of business by offering to work more cheaply should be as unworthy of a banker as we consider it unworthy a doctor."[51]

The Canadian Bankers Association was formed in 1891 to fix interest rates and other bank fees.[52] It was Canada's most important industry association, for parliament granted it the legal power to block charters for new banks, to reduce deposit interest rates, and increase loan rates. It lobbied successfully for an abolition of government savings accounts that "drained the lifeblood of the country."

The flawed Anti-Combines Law seemed a deliberate shot into its own net by a government of vested interests. Yet it was not replaced until 1989, when the Mulroney Tories brought in a new law. Canada thus had no real antimonopoly law until 1989 – long after the rise and fall of the widely held firm in Figures 6 and 7. Competition policy *per se* is thus not responsible for changes in ownership structure.

However, the government affected the intensity of competition in other ways. In the 1930s, Canada was hit badly by the Great Depression and a sustained deflation, which the Retail Merchants Association of Canada loudly blamed on predatory pricing by 'big business'. The Tory Prime Minister, R.B. Bennett's solution was the 1934 National Product Marketing Act, which enforced the cartelization, through marketing boards, of any industry whose producers so desired. Businesses from barbers to taxicabs were quickly cartelized under the direction of trade associations. Reynolds (1940) writes

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[51] Quoted by Bliss (1986) pp. 360-61.
[52] Bliss (1986) p. 361.

> "The Canadian associations perform scarcely any of the service functions which characterize trade associations in the United States. General statistical services, institutional advertising, cooperative research, and the like are very rare. The Canadian associations center upon the maintenance of 'fair prices' and it is judged largely by its success or failure in this field. One trade association secretary, indeed, remarked that 'manufacturers up here wouldn't be bothered with an association that couldn't control prices."[53]

Although Bennett vigorously denounced *laissez faire* in a cross-country radio address in 1935, he was no socialist. An enthusiastic imperialist and thoroughgoing Tory, he sought only to protect established business from instability, not unlike the Tories of the Family Compact a century earlier. Hankin (1933) summarizes the prevailing Canadian economic philosophy thus:

> "There must be planning, order, and cooperation in economic affairs between individuals, groups, and nations or disaster will overtake us all."[54]

The economy deteriorated further, and Bennett lost the 1935 election to Mackenzie King's Liberals. King repealed some of the cartel enforcement legislation, but similar provincial laws soon supplanted it in everything except agricultural products and banking. Federally enforced cartelization remained in place until the 1990s for most agricultural sectors, and still endures for wheat, eggs, and dairy products. Provincial cartelization created trade barriers within Canada, some of which are still in place – for example, blocking interprovincial beer sales.

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[53] Quoted in Bliss (1986), p. 427.

[54] Quoted in Bliss (1986), p. 428.

During World War II, King's "Minister of Everything", C.D. Howe, reorganized the economy for the war effort. To manage the private sector, he took key industrialists and representatives of wealthy families into the government as *dollar-a-year men* and assigned them production targets. The War Measures Act and Wartime Prices and Trade Board kept wages and prices low as production surged. The War Contracts Depreciation Board granted case-by-case accelerated depreciation tax deductions. If a contractor's profits seemed too high, Howe renegotiated the deductions down or levied an Excess Profits Tax. If no private firm could deliver on Howe's terms, he established a state-owned enterprise. Both entrants and business failures were vanishingly rare.

After the war, Howe ended wage and price controls, and curtailed officially-sanctioned price fixing by most industry associations in 1951. The economy was probably soon as competitive as before the Great Depression. As various rounds of trade negotiations slowly lowered MacDonald's National Policy tariffs, imports further stimulated competition.

The Trudeau Liberals probably lessened competition in the 1970s and early 1980s through an extensive program of nationalization, aimed at restructuring the economy to limit foreign control and execute industrial policies of various sorts. The most invasive, and economically disastrous, of these was the National Economic Policy. The NEP set all energy prices and subjected that industry to an intricate system of taxes and subsidies designed to shift oil and gas production onto federally owned land in the Arctic. The program devastated the existing oil and gas industry and ultimately led to no new production in the North. However, ordinary rules of competition clearly ceased for the duration of the program.

Finally responding to decades of complaints by economists and consumer groups, the Mulroney Tories proclaimed a new Anti-Combines Act in 1989. Less focused on concentration ratios and more on entry barriers than the comparable United States law, the new act is a more serious barrier to price fixing. The Mulroney Tories also ended most remaining Depression era cartelization. Canada's corporations are thus probably subject to more competitive pressure now than at any time in history.

Thus, enforced cartelization and war economy programs probably restrained competitive forces severely from the 1930s through the end of World War II. Competitive forces probably picked up after the war, died down in the 1970s and early 1980s, and picked up again thereafter. Supplementing the history of Anti-Combines policies with that of cartelization policies still yields a pattern at odds with that of corporate ownership. Widely held ownership expanded as competition eased in the Depression and war economies, and then picked up through the 1950s and 1960s. Widely held ownership abated as the Trudeau Liberals reduced competitive pressures, and continued to ebb after the Mulroney Tories brought in the first real antimonopoly laws. This does not disprove the theory of Demsetz and Lehn (19xx), for subtler renditions of it are possible. But there is clearly no simple pattern linking ownership structure to the likely briskness of competition.

Labor Rights

Roe (2003) argues that, in countries that give workers extensive legal rights, companies need strong shareholders to balance this. He shows that developed countries with stronger employee protection laws have more concentrated corporate ownership structures, including pyramidal ones. How does this hypothesis fit Canadian historical data?

Billionaires of the Laurier era had little regard for their workers or public welfare in general. Although Canada's billionaires could relocate Scottish castles to Toronto and build Tudor palaces on Vancouver Island, the major charitable foundations in Canada were the Ford and Carnegie Foundations. Canadian tycoons and wealthy families funded local good works, but none remotely considered charitable giving on the scale of Bell, Carnegie, or Hershey. Instead, the new rich, like the old, planned family dynasties. Although sporadic strikes and occasional labor unrest affected 19th century Canada, labor was generally accepting of its station. Labor unions were deeply antithetical to the traditional Catholic values of Québecois habitants and the Tory traditions of United Empire Loyalists. Voices for both condemned unionization as lamentable Americanization of the country. Certainly, business saw no need to be generous. The British Columbia tycoon Robert Dunsmuir instantly fired any employee he thought was even contemplating any connection to organized labor, perhaps setting the stage for that province's union militancy.

But World War I inflation and the postwar recession, aided by aided by the American Federation of Labor expanding into Canada, raised a backlash against concentrated wealth. Wartime inflation roughly doubled the cost of living by 1920, and fixed wages could no longer be justified out of patriotism. Union membership grew by 50% in 1919, and strikes paralyzed Canada's major cities, with the bloody Winnipeg General Strike attaining Bolshevik proportions.

Labor relations deteriorated in the 1920s, when Roy Wolvin and other former Beaverbrook associates created British Empire Steel from a merger of Nova Scotia Steel and Coal, Dominion Coal, Dominion Iron and Steel, Dominion Steel, a Halifax shipyard, and several other firms. Their timing could not have been worse, for steel prices collapsed and BESCO died, slowly. Wolvin slashed wages, and a genuine class war burst forth. By 1922, a full third of the Canadian Army guarded BESCO plants. One commanding officer even called in air strikes.[55] Nova Scotia labor was irredeemably radicalized, and this may have cost Atlantic Canada its industrial edge. And one of the great pyramid groups from the Laurier era was in tatters.

The Liberal Prime Minister MacKenzie King dismissed agitation by the unemployed as subsidy-seeking by provincial governments, and lost power in the 1930 election after quipping that he would not give a nickel to help a Tory provincial government alleviate alleged unemployment.[56] The new Tory Prime

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[55] See Bliss (1986, p. 389) for details.

[56] Bliss (1986, p. 415).

Minister, R. B. Bennett, was a corporate lawyer and long-time associate of Max Aitken. Married to the heiress to the E.B. Eddy Company, he was also a millionaire. Bennett also had little use for labor agitators.

C.D. Howe, unlike his counterparts in the other Allied countries, did not invite labor representatives to participate in planning the wartime economy. Strikes grew more frequent as the war wound down, and public opinion shifted towards unions. The agrarian socialist Cooperative Commonwealth Federation (CCF) party, championing social security and labor rights nearly won elections in Ontario and British Columbia in 1943, and won power in Saskatchewan in 1944.

King, having learned from his past mistake, issued an Order in Council (executive decree) in 1944 granting trade unions the right to organize and compelling collective bargaining. This was a sea change – from virtually no legal rights to substantial union powers. A wave of strikes engulfed the country as workers exercised their new rights.

In 1945, the courts found that all employees, even nonmembers, must pay union dues and that employers must collect them. This enabled unions to hire legal experts, lobbyists, and public relations experts. In 1961, organized labor took charge of the agrarian socialist CCF party, and rechristened it the New Democratic Party (NDP). Labor now had a clear voice in parliament, and soon exercised power through its support of a Liberal minority government. In 1965, an illegal postal strike ushered in collective bargaining for civil servants, who unionized in record numbers. This again greatly expanded the financial resources available to the union movement, and the influx of civil servants radicalized its political agenda.

The Québec Federation of Labor became the most militant wing of the movement, its intellectual leaders informed by French political thinking. A new wave of strikes engulfed the public and private sectors in 1966. Especially in Québec, strikes were violent and union leaders often flouted the law.

By the late 1970s, the rest of the public largely lost sympathy with unions, and union membership in the private sector plummeted in the 1980s. Unionized firms and industries downsized and failed, and new firms and industries took extraordinary measures to avoid unions. However, overall union membership remained much higher and union finances much stronger than in the United States because of public sector unions.

However, NDP governments intermittently held power in British Columbia, Saskatchewan, Manitoba, and Ontario; and the separatist Parti Québécois, whose labor policies paralleled those of the NDP, won power in Québec. Provincial labor legislation strengthened labor bargaining position further in these jurisdictions. Liberal governments in the Atlantic provinces have also become champions of labor rights.

In summary, labor rights remained very weak in Canada until 1945. They grew even stronger in 1965. Unionization in the private sector fell from the 1980s on, but labor rights remained unchanged, and even grew stronger in certain provinces. If strong labor rights necessitate strong controlling shareholders, we should see predominantly widely held firms until 1945, and then a steady increase in ownership concentration, especially after 1965. Roe's (2003) theory thus loosely explains the fall of the widely held firm after the 1960s, but not its rise over the first half of the century.

Shareholder Rights

La Porta *et al.* (1999) argue that large widely held firms currently dominate the ranks of large corporations in the United States and United Kingdom because those countries provide investors with better legal protection against pilfering by insiders and asset appropriation by corrupt officials. Small investors have limited resources for monitoring firms to detect such problems and intervening to correct them. Consequently, small investors only hold common shares in numbers sufficient to render most large firms widely held where they feel protected against such abuses. Also, corporate insiders get a higher price, all else equal, for shares issued to small investors where public shareholders legal rights are strong. Weak legal rights for small investors thus make them less interested in holding shares and corporate insiders less interested in selling shares to the public.

This line of reasoning, developed more formally by Burkart *et al.* (2002), suggests that widely held firms should become more commonplace as shareholders' legal rights grow stronger. Did shareholder rights grow stronger through the first half of the century and then somehow erode?

Armstrong (1986, 1997) traces the historical development of shareholders rights. Canada's corporate governance laws early in the century were extraordinarily weak.[57] A 1906 Royal Commission on Life Insurance exposed extensive tunneling in the Mackenzie-Cox pyramid, with money flowing from insurance companies to power companies, as well as extensive insider trades by the pyramid companies in each other's stocks.[58] The result was a 1910 law tightening investment rules and reporting standards – for insurance firms only.

Corporate governance was essentially a matter of private reputation, constrained loosely by vague and often contradictory provincial statutes and common law precedents. No federal corporation law existed until 1910, and that law required no annual general meetings. Until 1917 they needed only hold meetings every two years, and then only to elect the board. Only Ontario required annual shareholder meetings. The law mandated neither minority shareholder rights nor fiduciary duties by officers and directors to shareholders. Directors and officers had a "duty to the corporation" under common law, which was interpreted as trumping any duty to shareholders.[59] Conflicts of interest were of no concern to the courts. Shareholders had no rights in common law to inspect books or records unless they could persuade a judge of a definite legal objective and could identify the specific records that would certainly contain the information. Auditors had no duty to inform shareholders of potential or actual misconduct; their duty was purely arithmetical. One key precedent held that auditors were "justified in believing tried servants in whom confidence is placed by the company".[60] Another warned that an auditor who opines on governance "does so at his peril and runs a very serious risk of being held judicially to have failed to discharge his duty."[61]

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[57] See Armstrong (1997) for a detailed review. A good summary is also provided in Boothman (2000).

[58] Bliss (1986) p. 370.

[59] Technically, the Canadian courts held, and continue to hold, that officers and directors have a fiduciary duty to the *legal person of the corporation*, not to the shareholders. The courts are unclear about what exactly constitutes faithful service to this fictional person. However, the courts permit officers and directors to destroy shareholder value if this benefits the corporation's legal person. Shareholder derivative lawsuits, American public investors' primary weapon against self-serving or inept corporate insiders, are therefore seldom used.

Despite the absence of clear shareholder rights, stock ownership expanded rapidly during the 1920s. A.E. Ames & Co., Dominion Securities, Royal Securities, Nesbitt, Thompson, and Wood Gundy underwrote a boom of new issues. Ike Solloway and Harvey Mills established a chain of Solloway, Mills, & Co. offices across the country to handle the surging investor demand. By 1929, the Alberta based firm had forty offices, fifteen hundred employees, and 13,500 miles of private wire. McDougall & Cowans, Greenshields & Co., and Watson & Chambers also became major players in the investment banking and retail brokerage businesses.

Following the Crash of 1929, the *Financial Post* published exposés of the investment industry. As the government struggled with a huge foreign debt run up by the CNR and an expanding trade deficit, Ike Solloway was arrested and jailed.

The United States greatly expanded its public shareholders' rights in the 1930s, with the establishment of the Securities and Exchange Commission and other regulatory systems to clean up its stock markets after the abuses revealed by the 1929 crash. At the time, Canada was governed by William Lyon Mackenzie King's Liberals, and the influential senior cabinet minister, C.D. Howe, felt such regulation had no place in a capitalist country. Besides, stock market regulation was an area of provincial jurisdiction, and the provincial authorities condemned securities regulation as undue Americanization. Although provincial securities commissions were established in the 1930s, disclosure remained piecemeal and trading on insider information remained legal.[62] High-pressure "boiler room" sales techniques remained an esteemed institution of Canadian finance.[63] Consequently, Canada's stock markets in the 1950s still resembled the NYSE in the 1920s. Disclosure was often minimal, insider trading was a perk, and anything short of outright fraud was fair game.

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[60] Re Kingston Cotton Mills (1986) 2 ch. 279 at 688, 65 LJ ch 673.
[61] Re London and General Bank (1895) 2 ch. 685, 64 LJ ch 866.

Hearing of the vast riches in oil and minerals north of the 49th parallel, small U.S. investors responded in droves to telephone pitches from Canadian boiler rooms. The lucky widows and orphans across America found themselves the humiliated owners of worthless moose pasture. The unlucky ones lacked such title, for they had all bought the same patch.

Senators and congressmen in Washington, prodded by their outraged constituents, repeatedly demanded that Canada do something. The response was always that stock market regulation was not a federal matter in Canada. After a series of especially egregious swindles, the United States threatened an embargo on investment in Canada unless the Toronto market was cleaned up. Under heavy federal pressure, the Ontario government established the Ontario Securities Commission, mandated standardized disclosure, and moved to curtail insider trading in the mid 1960s.

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[62] Bris (2000) argues that insider trading remains a greater problem in Canada than in other developed economies

[63] See Armstrong (1997) for details regarding the lack of reform.

Shareholder rights were further strengthened as the Canada Business Corporations Act came to include an Oppression Remedy, whereby small shareholders could sue large shareholders. The Oppression Remedy quickly became small shareholders' main weapon against corporate insiders. In many ways, oppression lawsuits are superior to shareholder derivative actions because the former target the ultimate controlling shareholder, not just her professional managers. Various exchange and securities commission reforms in the 1990s further expanded shareholders' legal rights. Although solid by international standards, Canadian securities laws are probably still substantially weaker than in the United States. For example, small block holdings, executive pay, research and development, and several other critical items need not be disclosed in the same detail as in the United States.

If widely held firms become more viable when shareholder rights are stronger, they should have been rare until *circa* 1960 and then more common. But Canadian shareholder rights were consistently weak through to the 1960s, while diffuse ownership inexorably expanded. Then, in the 1960s, shareholder rights were abruptly strengthened, and widely held firms began to fade away. Changing shareholder rights seem a poor candidate to explain the rise and fall of the widely held firm.

Of course, laws and statutes do not necessarily make or break shareholders' legal rights. Insider norms of behavior might have risen and fallen through the century, first encouraging diffuse ownership and then discouraging it. However, we have no evidence of such a pattern. Another possibility is that judicial inefficiency or official corruption, either of which can render legal rights dead letters, abated and then resurged.

Colonial Origins Revisited

Twentieth century Canada is, by and large, not a terribly corrupt place.[64] Bribes to officials are not part of everyday life. However, Canada's deep colonial mercantilist heritage gives rise to situations that resemble corruption in many ways. These situations are encompassed by the term *political rent seeking*, wherein businesses invest in government connections to reap subsidies, monopolies, or favorable legislation. Political rent seeking is usually not illegal, though it can be embarrassing to politicians. It is a normal activity in virtually every developed and developing economy. But, there are reasons to think that political rent seeking is more important in Canada than in many other developed countries.

As noted above, many authors argue that conditions far back in a country's history define its modern institutions and constrain its modern economy. The defining feature of Canada's colonial past is mercantilism. Canada, as a private domain of Jean Baptiste Colbert, was immersed more totally in French mercantilism than even France herself. The British who took charge retained French colonial institutions, realizing their benefit to the local elite –

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[64] Though Francis (1988) details a long series of swindles, stock market frauds, and money laundering operations based in Canada, and argues that the country is much more corrupt than is commonly believed. Cameron (1994) and Savoie (1990) present evidence that official corruption in Canada is worse than is commonly believed, and Swatsky (1987) presents indirect evidence of this in passing.

now themselves.[65] The Loyalist refugees from the United States, victims of liberal revolutionary excesses, sought stability in the Family Compact – an institution that brought business and government intimately together. The Liberals who displaced them in the mid 19th century immediately used their offices to divert public moneys to their businesses, resurrecting the mercantilist philosophy of Colbert and Talon. Thus mercantilism lived on in Canada long after it lost support elsewhere.

Close ties between politicians and businesses remain part of the Canadian economic landscape. These ties need not signify corruption. That Prime Minister Jean Chrétien's daughter wed the son of Paul Desmarais, whose Power Corporation controls one of Canada's largest pyramid groups, is not associated with any improprieties. Nor is the fact that his successor, Prime Minister Paul Martin, ran Canada Steamship Lines, a former Power Company. But business-government relations in Canada often parallel personal relationships. This always risks letting well-connected businesses capture public-spirited industrial policies.

If politicians are disposed to cut deals with certain businesses, they might find some better favor trading partners than others. Landes (1949, p. 50) argues that family businesses are more wiling partners, and blames the weak 19th century French economy to business families that regarded the state as "a sort of father in whose arms [they] could always find shelter and consolation." Morck and Yeung (2004) argue that family controlled pyramid groups are more reliable partners than freestanding widely held firms for politicians. They cite a variety of reasons why old, powerful families are more capable of cooperative behavior in repeated games of reciprocal favor trading. For example, old families have longer horizons, and so more dependably repay old debts. Pyramid groups can repay favors for one firm with cash flow from another. And powerful families can better punish politicians who fail to deliver. Thus, pyramid groups controlled by old families might have an edge in political rent-seeking competitions.

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[65] See Parkman (1867)

Canada's ubiquitous corporate subsidies were often controversial, and politicians were frequently lampooned for corruption. CPR baron Van Horne well summarized the view of business leaders that "people who put pigs in office ought not to complain if they eat dirt and are bought and sold."[66] But some governments were clearly more into subsidizing nation building projects than others. We therefore see if family controlled pyramid groups grew more important in periods when superior rent-seeking ability was probably more valuable.

Wilfrid Laurier appears to have avoided most such dealings until his last term, when he took to subsidizing railways generously. His successor, Borden, broadened and deepened these subsidies, ultimately buying out the railway men with state funds to form the Canadian National Railway.

A Progressive Movement arose out of western Canada to combat concentrated economic and political power. Sensing mixed public feelings about with mercantilist policies, Laurier made free trade *the* issue of the 1911 election, and lost when many Liberals defected to defend the National Policy. It soon became clear that the Progressives too sought to reform mercantilism, not bury it. A Progressive "people's power" campaign, aided by businesses lobbying for subsidized electricity, brought Ontario a provincially owned power company.[67] A similar campaign in Alberta led to the state-owned Alberta Government Telephones.[68] Ultimately, the Progressive Party and Tories would find sufficient common cause to merge into the Progressive Conservative Party.

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[66] Bliss (1986) p. 368.

Through the century, Canada's reaction to unfolding events always paralleled those of other English speaking countries, but with a mercantilist twist. Tory Prime Minister Bennett's solution to the deflation of the Great Depression was industry-organized state-enforced cartels to raise prices, clearly a return to mercantilist basics. King embraced Keynesian fiscal policy in 1945 after intense industry lobbying, especially by construction firms, as a way to extend government subsidies to businesses. Even Canadian social programs often appear first through a mercantilist lens. For example, Canada established unemployment insurance in 1940 after a sustained lobbying campaign by Arthur Purvis, the president of Canadian Industries Limited. The government was to adopt a broader insurance role to free business of the burden of retaining workers during downturns.

Mercantilism changed its character in the series of wartime and post World War II Liberal governments that centralized economic power in the hands of C.D. Howe. Howe believed fervently that Canada always needed a grand project, on par with the CPR, to spur development. In this, he was a traditional mercantilist.

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[67] See McKay (1983).
[68] Bliss (1986), p. 371.

His first grand project was a state-owned airline. In 1935, Howe became Transportation Minister, immediately squashed a nascent private-sector airline, organized Trans Canada Airlines (TCA, later renamed Air Canada) as a subsidiary of the state-owned Canadian National Railway; and hand picked all its senior managers. He supervised the construction of the Trans-Canada Highway. A series of nation building exercises ranged from massive construction projects to subsidies for 'strategic industries' like jet fighter building. For example, in the 1950s, Howe subsidized aircraft manufacturers A.V. Roe (Avroe), Canadair, and De Havilland. Howe also used subsidies to prop up depressed regions. For example, he directed an increasing flow of subsidies to Dominion Steel and Coal in northern Nova Scotia.

But Howe also sought to control all business-government relations through his office, and this was new. After running the wartime planned economy, Howe held a rotating portfolio of cabinet positions, with economic power following him from office to office. Howe sought to steer the economy however he could. He granted or denied import permits on a case-by-case basis, favoring some firms over others. High taxes were now institutionalized, and Howe quickly realized that the tax system was now his major tool for micromanaging the economy.

Canadian business was still in the hands of a small network connected by ethnicity, school ties, and family connections; and by the war's end, Howe had a personal relationship with every member of that network. Corporate presidents routinely asked Howe to recommend bureaucrats for corporate management jobs.

Years later, the top executives of the country's biggest firms owed their careers to Howe. Howe invested heavily in the stocks of such companies, and his policies often greatly affected their profits. For example, James Dunn, the CEO of Algoma Steel, called Howe, whose policies saved the company and who (through a trust) was a major investor, the "great white father in Ottawa".[69] The recipient of major government contracts, CD Howe & Co. was run by Howe's son and son-in-law.

In 1956, with subsidized construction of the St. Lawrence Seaway nearing completion, Howe chose a transcontinental oil pipeline as his next grand project. The "dictator" pushed enabling legislation through parliament, invoking closure from the outset to end debate, and then wielded his war powers to organize its construction by American oil companies. Howe won the pipeline debate, but the Liberals, since 1948 led by Louis St. Laurent, lost the 1957 election because of it. C.D. Howe lost his seat to a socialist schoolteacher. Apart from his infatuation with grand nation-building projects, and the contracts associated with them, Howe largely left the economy to the invisible hand. By concentrating business-government relationships in his office, Howe professionalized the civil service and forced other politicians to get by without wielding such influence.

The new Progressive Conservative Prime Minister, John Diefenbaker (1957-63), an upstart lawyer born in a shack in rural Saskatchewan, inherited Howe's nation building schemes. The dearest was A.V. Roe Co., which now produced an ill-designed jet fighter called the Avro Arrow.[70] Roe allegedly used A.V. Roe's cost-plus government financing to build a pyramid of engine makers, steel firms, and railway car builders, and finally to acquire DOSCO, a pyramid of steel and coal companies.[71] Diefenbaker cut its subsidies in 1957, at the onset of the so-called Diefenbaker Recession.

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[69] Quoted by Bliss (1986), p. 472.

With Howe gone, nation building seemed almost passé. However, Canada's mercantilist heritage could not long be suppressed. Its noisiest eruption was in Québec. *La Révolution tranquille* of the early 1960s marginalized the Roman Catholic hierarchy, opening the public mind to increasingly radical ideas – first secular education and divorce, then socialism, and finally separatism. Québec subsidized a new steel industry, built vast hydroelectric projects, and supported gigantic aluminum smelting ventures. Its most intrepid venture was the Caisse de Dépôt et Placement du Québec, which began buying control blocks of listed firms in 1967. The Caisse was to be government controlled pyramid group, a much cheaper way to take charge of the economy than outright nationalizations, and more effective than regulation. Many of the firms the Caisse took over were previously widely held.

Partly to deflect Québec separatism, the Trudeau Liberals trumpeted Canadian nationalism. Trudeau disliked economics, and delegated economic policy to his college chum Marc Lalonde, a committed nationalist who aspired to replace American dominance of the economy with links to Europe and Japan. This philosophy acquired more force between 1972 and 1974 when a Trudeau minority government depended on the socialist, and now highly nationalist, New Democratic Party. Tories, especially those of Loyalist lineage, joined the anti-American cries.

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[70] The company also received subsidies from the US Defense Department to produce the Avrocar, a small flying saucer.
[71] See Bliss (1986, p. 475) for details.

Although patriotism, ideology, and history certainly kindled this wave of nationalism, it quickly acquired a mercantilist hue. Canadian executives feared US takeovers as career disasters, and old families feared foreign competition. In this setting, successive Trudeau governments constructed an alphabet soup of government agencies to subsidize "Canadian" firms, vet foreign takeovers, and control ownership structures explicitly in "strategic" industries like culture and energy.

Publishing companies, like the Southam group and Maclean-Hunter, lobbied strenuously for foreign content rules to drive US competitors, like Time and the Wall Street Journal, out of Canada. Canadian filmmakers lobbied successfully for generous tax subsidies in the name of Canadian culture. The Canadian Radio and Television Commission (CRTC) mandated that Canadian-made programs constitute set fractions of broadcasting schedules, and licensed entry into broadcasting to create profit cushions to finance this programming. The regulation, cartelization, subsidization, and protection of "cultural industries" became national policy.

Canadian content regulations did succeed in relocating substantial parts of United States program and film production to Canada; for "cultural products" are "Canadian" if they are partially produced in Canada. Thus, many US network programs and films now count as "Canadian culture".[72] Television content regulations also made Canada a world leader in cable television technology, as Canadians subscribed in droves to receive foreign stations.

In 1971, the Liberals set up the Canada Development Corporation (CDC) as a 'white knight" to block takeovers by foreign firms. In 1973, they established the Foreign Investment Review Agency (FIRA) to vet foreign takeovers. FIRA took its work seriously, and began blocking foreign takeovers with considerable energy. A spike of takeover activity in the early 1970s corresponds to multinationals exiting and selling their operations either to state organs or to private sector Canadian firms.

The acme of Trudeau era mercantilism was the National Energy Policy (NEP) – enacted in 1981. All current and future energy prices were legislatively set, and preannounced in 1981, cutting the profits of existing energy firms sharply. Up to 80% of drilling costs in Federal Territories (the arctic) would be paid by the government, but only if the drilling company was at least 75% Canadian owned. Less than 50% Canadian ownership disqualified a company entirely from operating in Federal Territories. These provisions were designed to discriminate against foreign-controlled companies and to lessen Alberta's importance by damping its economy and developing oil and gas in the arctic, where the federal government owned the mineral rights. The most controversial element of the NEP was the direct expropriation of twenty-five percent of the properties of all foreign controlled companies already active in Federal Territories. These properties were reassigned either to PetroCanada, the new federally owned oil company, or to other government organs. PetroCanada was also to buy foreign-controlled oil companies with money from a new Canadian Ownership Account (CAO), to be financed with a new federal tax.

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[72] See Atcheson and Maule (1999).

The government began nationalizing industrial firms, including De Havilland Aircraft, Westcoast Energy, and many others. Air Canada acquired private airlines, and other state-owned enterprises expanded. State ownership, control, and regulation were dominating the land almost as during the war.

Businesses either learned to navigate the new environment or floundered. Swatsky (1987) writes that business leaders "yearned for the not so distant time when they could phone C.D. Howe and resolve their problems on the spot." Prior to Howe, self-interested politicians routinely and overtly undertook joint ventures with business leaders, and these "business government partnerships" enriched both. Howe professionalized the civil service, and insulated it from political pressures - other than his own. With the economy liberalized and Howe gone, business leaders continued to lunch with politicians, but the urgency of such meetings faded as the government withdrew its hand from the economy.

Now suddenly, the Trudeau government's hand was visible everywhere, and there was no longer a single point of contact for business. Numerous agencies, offices, and authorities now took part in regulating the economy. The Trudeau era federal government was large and complicated, with interconnected lines of control that did justice to the most complicated corporate pyramids. Increasingly estranged from this new public sector, business leaders were repeatedly hit with regulations, laws and decisions that seemed from out of the blue.

Swatsky (1987) describes how some of the most brilliant young Canadians of the 1970s came to realize that "business was fundamentally incompetent in dealing with government" and that the increasing complexity of government created golden business opportunities. These young entrepreneurs built a new industry of consulting firms to monitor government, alert clients about impending problems, coach them about how to deal with different government organs, and to intervene on their clients' behalf. The value of these interlocutors became increasingly evident. Swatsky (1987, p.98) recounts how a multinational consortium invested $150 million dollars in an application to build a natural gas pipeline along the Mackenzie valley and then lost out to a hastily conceived, ill-prepared, and under-financed rival through "bad lobbying". The business of helping business deal with government grew in leaps and bounds, creating a new troop of millionaires.

Companies that learned to build their strategies around government policies prospered. Nova, a new widely held pyramid group grew rapidly through a spate of takeovers, cheered on by the supervisors of the NEP as it "Canadianized" firm after firm. While most oil and gas companies railed against the NEP, Nova learned to love it. Of course, the firm was also buttressed by its legislatively protected cost-plus natural gas transmission monopoly. Dome Petroleum also earned laurels from the NEP for its purchase of Conoco in a complicated takeover deal involving Mesa and Occidental Petroleum.

Although most of the federal government's Trudeau era corporate acquisitions were of formerly foreign controlled firms, provincial governments – especially Quebec, were less fussy. The separatist Parti Québecois, now running the province, took its economic ideology from France, and directed its vast state controlled pyramid group, the Caisse de Dépôt et Placement du Québec, to acquire control blocks in Dominion Textile, the former Argus company Domtar Inc., and many other firms.

In 1984, Brian Mulroney routed the Liberals, and his Progressive Conservative government quickly dismantled or defanged many Trudeau era industrial policy agencies and ownership restrictions. Mulroney also embarked on a privatization program, floating Howe's Air Canada, Borden's Canadian National Railway, Trudeau's PetroCanada, and a host of other state-owned enterprises as freestanding widely held firms. Free trade with the United States, enacted in 1989, greatly reduced the returns to rent-seeking for preferential tariffs. Exposés of improprieties in the Caisse undermined Québec's industrial policy, and other provincial governments began selling off their state-owned enterprises too.[73] However, subsidies to politically powerful industries, like autos and aerospace, continued, as did funds for regional development, especially in Atlantic Canada. Corporate taxes remained a Byzantine maze of implicit subsidies and regulatory bureaucracies remained powerful. .

In 1993, Jean Chrétien led the Liberals back into power. More interventionist than the Mulroney Tories, they reinvigorated the rules and regulations protecting "cultural industries". Now the Liberals were divided between those of the Trudeau era and those who looked back to Laurier for inspiration, but continued subsidies, regulations, and industrial policies won the day. The Mulroney and Chrétien regimes were also both plagued by allegations of kickbacks, cronyism, and misappropriation of public funds.[74] However, in fairness, government was much more transparent, the press more aggressive, and the populace less accepting than in the past. The allegations against the Mulroney Tories are small change, and those against the Chrétien Liberals, though more substantial, remains unproved.

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[73] See Arbour (1993) for a detailed history of the Caisse.

An explanation of ownership structure with differential success at rent seeking thus must go as follows: The first decade of the 20th century was probably a period of rising mercantilist expectations, and family groups grew in importance in Laurier's last years. Influencing government was not terribly useful early in the Laurier years, but this apparently changed in his last term. The cartels of the 1930s, though state enforced, were administered by industry association, not the government. And though business government relations were close during the Second World War, political rent-seeking was probably constrained by patriotism, or at least the fear of being branded a profiteer. Family groups gave ground to widely held firms from the 1920s through to the 1950s. In the 1950s, Howe continued to intervene in the economy, but monopolized business-government relationships. Shleifer and Vishny (1993) argue that monopolistic corruption is much less expensive to firms than decentralized corruption. A similar argument may apply for legal political rent-seeking. By centralizing political rent seeking in his office, Howe perhaps reduced the benefits of being a superior rent-seeker. In the 1960s, Diefenbaker and then Pearson cut back on subsidies to industry, presumably keeping the benefits of superior rent seeking ability low. Trudeau returned to large-scale intervention, and the benefits of superior rent-seeking soared, giving pyramid groups a decided advantage. This accounts for their upswing in the last third of the century.

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[74] See Cameron (1994) for allegations of corruption in the Mulroney governments, and the Auditor General's 2004 Report to Parliament for evidence of corruption under Chrétien.

Ethnic Divisions

Easterly and Levine (1997) show that greater ethnic divisions slow growth in modern African emerging economies. This reflects lower public expenditure on schools, worse political instability, larger government deficits, weaker financial systems, more distorted foreign exchange, and less infrastructure investment in general. They argue that all of these problems reflect different ethnic groups fighting to divert public revenues toward themselves and away from other groups.

There is no evidence that ethnic tensions cause problems of similar magnitudes in developed economies. However, Canada's French-English linguistic divide is an ongoing source of political and economic crises. Québec's *Révolution tranquille* of the 1960s brought long dormant linguistic grievances to the surface, ultimately leading to Québec separatism. Canadian politics focused on uniting Canada's linguistic solitudes thenceforth. One of Canada's greatest financial crisis of the last half century occurred in 1976 when the separatist Partie Québécois won power. The Canadian dollar, previously trading above the United States dollar, plummeted and never recovered. The motive of the Québec government in building up its own pyramid group, the Caisse de Dépôt et Placement du Québec, was certainly to inject Francophone control into the corporate sector, though a European socialist perspective was clearly at work too. The motive of the Trudeau Liberals in building their vast system of subsidies, taxes, and regulations through the 1970s and 1980s was overtly nationalist – to forge a Canadian identity to supersede English or French Canadian identities, much as Bismarck did in 19th century Germany. But again, a socialist economic philosophy may have been more important.

This line of reasoning is certainly the most speculative we advance, and we do so cautiously. Canadians are highly educated and it seems unlikely that tribal loyalties could so unbalance the nation as to affect its institutions and the control of its great corporations. There is most likely a coincidence of timing, and at most a marginal effect worsening slightly a relapse into mercantilism.

Openness

Canada entered the 20th century protected by the high tariffs of MacDonald's National Policy, in place since 1879. Wilfrid Laurier's Liberals, disposed to free trade, had to promise loudly and repeatedly not to touch the National Policy to gain business support in their campaigns. When they finally let principles prevail over prudence, in the 1911 election, they lost handily.

High tariffs remained in place through the 1920s, but Canadian exporters penetrated deeply into the US market in certain sectors. Abe and Harry Bronfman, who ran hotels in western Canada, discovered the highly profitable mail order liquor business. His attention to quality and cost soon made Harry the biggest liquor wholesaler in Saskatchewan, with most of his business in border towns. By 1927, having gained control of Seagram's, an old family distillery in Ontario, the Bronfmans were among the richest families in Canada. The Ontario hotelier Harry Hatch took over Gooderheim and Hiram Walker distilleries, and set up a rival mail order and wholesale liquor business. The stalwartly devout Labatt family turned over management of their breweries to Edmund Burke, an Irish catholic who cheerfully maximized exports. By the mid 1920s, competition in beer and spirits exports was so intense that profits were dangerously thin and Canadian exporters organized to fix prices.

All of these enterprises owed a deep debt to the Molson family, who vigorously worked their political connections to keep Canada, and especially Québec, from succumbing to the hysteria of Prohibition – America's "War on Alcohol". Since it was up to the American shippers to pay duties at the US border, trade barriers did not directly affect Canadian liquor producers.

But other Canadian industries were in worse shape by the end of the 1920s. Worldwide overcapacity in minerals, paper, wheat, and manufactured goods depressed prices. In 1930, the United States enacted the Smoot Hawley Act – high tariffs that crippled Canada's exports. Industry after industry crumpled, hiring stopped and layoffs started. Prime Minister Bennett's solution was to raise the tariff to protect industry association cartels committed to keeping prices high.

At the Ottawa Imperial Economic Conference of 1932, Bennett orchestrated an Empire-wide retaliation to US tariffs. The new Imperial

Preferences abruptly shut United States and Baltic lumber and paper out of Imperial markets, resurrecting the British Columbia industry. Canada Packers could now undercut Danish pork producers, and U.S. firms had to establish branch plants in Canada to re-enter Imperial markets.

In the late 1940s, Howe argued for a final elimination of the National Policy, and Prime Minister King negotiated a free trade treaty with the United States. But, apparently reflecting on Laurier's 1911 defeat, King quietly discarded the plan.

Trade barriers only started falling with the General Agreement on Tariffs and Trade –rounds of negotiation and multilateral treaties after World War II. However, multilateral negotiations were, from a pragmatic viewpoint, less important than regional trade barriers, especially those between Canada and the United States. Prime Minister Pearson ultimately negotiated an Auto Pact with the United States in 1965 that permitted free trade in automobiles and auto parts. The pact also contained useful market share provisions for Canadian manufacturers. The Auto Pact transformed a dying industry into an engine of the Ontario economy, and would serve as a blueprint for subsequent negotiations to reduce trade barriers in other industries.

Further multilateral and industry arrangements steadily lowered trade barriers between Canada and the United States through to the 1980s, when the bureaucratic hassle at the border was often a larger cost than the actual remaining tariffs. The Mulroney Tories therefore negotiated a comprehensive Free Trade Agreement (FTA) with the United States to abolish all remaining trade barriers.

After winning a majority government in a snap election called to gain a mandate for the agreement, the Tories enacted the FTA in 1989. The agreement removed remaining trade barriers, industry by industry, over a ten year period. Tariffs on motorcycles and computers disappeared the first year, excluding only cultural industries (at the insistence of the Canadians), defense industries (at the insistence of the Americans), and agriculture and textiles (at the insistence of both).[75]

Thus trade barriers rose somewhat in the 1930s and then fell steadily after world war two. Although the timing does not correspond closely to the rise and fall of the widely held firm in Figures 6 and 7, one might speculate that freestanding widely held firms do better in economies protected by trade barriers. However, other evidence makes this unlikely. Morck *et al.* (2000) find that the stock prices of Canadian firms controlled by old money families dropped relative to other firms in their industries upon the surprise victory of the Mulroney Tories in the election called on free trade. Rajan and Zingales (2003) argue that many countries had more developed financial systems a century ago than now, and that unconstrained elites undermined these systems later in the century to deprive upstart competitors of capital. They find that this occurred less in countries that remained more open to the global economy – suggesting that openness hinders narrowly held firms run by a tiny elite.

Openness to foreign capital need not always accompany trade openness, so before forsaking openness as an explanation of changes in ownership structure, we explore the history of openness to global capital markets.

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[75] With no major changes as regards United States-Canada trade, the FTA was extended to Mexico and rechristened the North American Free Trade Area (NAFTA).

Prior to World War I, Canada was on the gold standard and fully open to foreign capital. The Great War interrupted the flow of British capital, as well as most transatlantic shipping, and immigration. Canada returned to the gold standard after the war, and foreign capital again flowed in during the 1920s, this time from New York more than London.

In the 1930s, Bennett abandoned the gold standard as he raised tariffs, but Canada remained open to foreign capital under the post World War II Breton Woods system and after it.

The substitution of American for British capital, first visible in the 1920s, was now complete. In the 1960s and especially the 1960s, American capital flowed into Alberta oil and gas firms, fueling the regions rapid growth. Though Safarian (1969) and others show this capital flow beneficial, high profile takeovers, like Gulf's acquisition of British American Oil, irked nationalists and probably scared corporate insiders, who feared losing out in takeovers. American ownership became more controversial than the foreign capital inflows overseen by Laurier or King. Imperialists saw increasing United States influence undermining ties to Britain. Socialists, nationalists, and old fashioned conservatives gained media attention condemning United States multinational corporations for any number on sins. Some top managers at widely held firms and old family patriarchs surprised the socialists by chiming in with unexpected support.

Diefenbaker, the prairie lawyer, was unimpressed by all of this. An outsider to the Anglo corporate elite, he was disinclined to interfere in the market for corporate control. The farthest he went was to permit defensive tactics like the mutulaization of the largest insurance companies, including Canada Life, Confederation, Equitable Life, Manufacturers, and Sun. This allowed their delisting, and so blocked takeovers (not just foreign ones) and ensconced their top managers.

Howe had angered nationalists by turning construction of his pipeline over to Americans. Then Diefenbaker infuriated them by canceling the Arvro Arrow. That fury contributed to his loss of the 1962 election, which returned the Liberals to power under Lester Pearson. An old guard rebellion within the Tory Party forced Diefenbaker out as opposition leader a few years later. However, the Pearson Liberals avoided protectionist policies for the most part. An early exception set this tone. In 1963, the Liberal Finance Minister, Walter Gordon, announced a 30% takeover tax on the sale of publicly traded companies to foreigners. Amid a storm of controversy, the tax was hurriedly withdrawn.

The Liberals sought to campaign from the left and rule from the center, but their explicit embrace of economic nationalism exposed them to charges of hypocrisy. When the takeover of a small bank by US interests triggered more nationalist outcry, the Liberals responded in 1964 by legislating voting caps on the big banks. These forbade any single shareholder from holding more than a ten percent stake, and capped aggregate foreign ownership at twenty-five percent. Both restrictions were enshrined in the 1967 revision to the Bank Act. Garvey and Giamarino (1998) conclude that these restrictions "were put in place to prevent American ownership of Canadian banks and there is little indication that consideration of economic costs played a significant role in the decision."

The other major economic initiative of the Pearson Liberals was a half step in the opposite direction. The 1965 Auto Pact paved the way for vast United States investment in the Ontario auto sector, and paved the way for the FTA in 1989.

Foreign direct investment form the United States became one of the highest profile evils to be fought by successive Trudeau governments from the late 1960s through the mid 1980s. Their Canada Development Corporation (CDC) was a 'white knight" to block foreign takeovers, their Foreign Investment Review Agency (FIRA) had the legislative power to block foreign takeovers, and their National Energy Policy (NEP) established unfavorable tax and subsidy rules for foreign controlled companies. The Canada Radio and Television Commission (CRTC) and other government organs blocked, taxed, and regulated foreign investment in 'cultural' industries.

The inflow of foreign capital to Canada was thus unrestricted through most of the century, except for the abandonment of the gold standard during the First World War and the Great Depression. However, foreign capital inflow was highly regulated and discouraged with various tax and subsidy provisions under the Trudeau governments. The rise of widely held firms corresponds to capital account convertibility, their decline to capital account restrictions. How the two might be connected is unclear, but there are several possibilities.

The Trudeau governments wielded greater and more wide-ranging economic power than any previous government, with the possible exception of King's wartime administration. They also sought to stop American takeovers of Canadian firms, but were constrained by revenue shortfalls, which they could not relaxed much further through loose monetary policy because of growing public discontent with inflation. It is conceivable that Trudeau era officials might have rewarded Canadian business families that took control blocks in widely held firms, and so saved them from possible foreign takeovers. Globerman (1984) argues that Trudeau era restrictions on foreign takeovers created rents for Canadian families, as they were better able to disguise payoffs for running such nationalist errands than freestanding listed firms. However, no government records attest to such dealings, so this explanation remains highly hypothetical.

The FIRA publicized its high approval rates on FDI reviews, but Globerman (1984) correctly argues that foreign investors likely to be turned down did not apply. Moreover, the approvals were often contingent on agreements to source from Canadian firms, undertake other investments, and so on. Globerman argues that such restrictions are, in essence, transfers from foreign investors to favored Canadian firms. The government might have used such restrictions, among its other economic powers, to reward firms that helped advance its Canadian control agenda. The NEP formalized this, granting explicit tax breaks and subsidies to reward Canadian acquirers of control blocks in previously foreign controlled energy. However, outside the energy and cultural industries, formal arrangements like this are not evident, and the hypothesis cannot be confirmed.

He also argues that the Trudeau era barriers, discriminatory subsidies, and tax penalties against foreign investment may have had another unintended effect. Canadian entrepreneurs may build companies with a view to selling them eventually to larger concerns and retiring or starting other new ventures. These firms might be sold to public shareholders, and become widely held, or sold to existing firms. By constricting the pool of potential buyers to Canadians and favored foreigners, the Trudeau governments probably reduced this ultimate payoff to entrepreneurship. This could have deterred new firms from forming. Not formed, they never became large freestanding widely held corporations.

VI. Conclusions

Recent work, including La Porta *et al.* (1997, 1997a, 1998, 1999, 2000, 2000a), Acemoglu *et al.* (2000, 2001, 2002, 2003), and others stresses the importance of legal system origins and distant colonial conditions in constraining the evolution of modern institutions. We provide a detailed case study of how this occurs. Canada's institutions of both government and business have deep mercantilist roots, stretching back to colonial times. Those roots nourish modern developments and ideologies, transforming them to direct institutional development down mercantilist paths.

Khanna and Palepu (1997, 2000, 2001) argue that family controlled business groups have a survival advantage over freestanding widely held firms in

India and other developing countries because group firms can deal with each other, avoiding transactions in corrupt or otherwise flawed open markets. Consistent with newly industrialized Canada having weak institutions supporting its markets, most large Canadian companies belonged to business groups at the beginning of the century. Canada's early industrialization also provides insights into the general validity of many current theories of economic growth. This period of Canada's development is consistent with Acemoglu *et al.* (2000, 2003), Murphy *et al.* (1989), Solokoff and Engerman's (2000), and others.

The early and mid-twentieth century were periods of ascendant economic liberalism, featuring a well developed stock market, solidified shareholder rights, increasing competition, and a shrinking role of government. These events all favored the profusion of large freestanding wide held firms, consistent with La Porta *et al.* (1999) and Burkart *et al.* (2002).

Events in the latter decades of the century encouraged government intervention in the economy for laudable political reasons and high ideals. However, Canada's mercantilist roots, never fully eradicated, found this expanded public sector fertile ground. Soon, socially progressive institutional innovation became a thicket of complicated subsidies, transfers, tax advantages, and regulation that stimulated vast corporate investments in political influence. Morck and Yeung (2004) argue that family controlled corporate groups are more effective political rent seekers than freestanding widely held firms. Consistent with this, the final decades of the century saw a marked resurgence of corporate groups. Labor rights were also strengthened substantially later in the century, so

Roe's (2003) theory that concentrated ownership arises to counter strong labor unions has some traction regarding the fall of the widely held firm after the 1960s, but not their rise over the first half of the century

Our findings are consistent with previous work in this area, including Rajan and Zingales (2003) who argue that entrenched elites in many countries acquiesce to or promote policies that erode financial systems, Olsen (1963, 1982) who describes the behavior of entrenched elites, and others, like Baumol (1990) and Kruger (1974), who advance theories of rent seeking.

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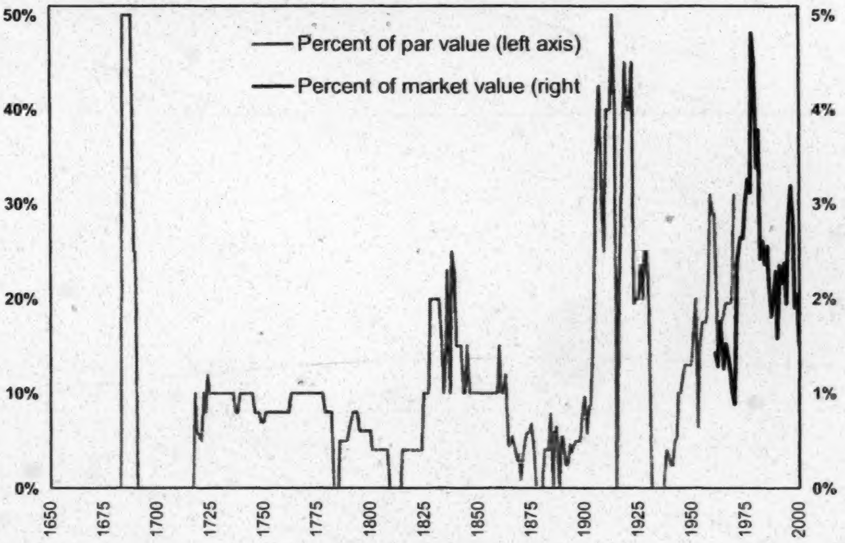
Table 1. Canadian Prime Ministers and Governments of the Twentieth Century

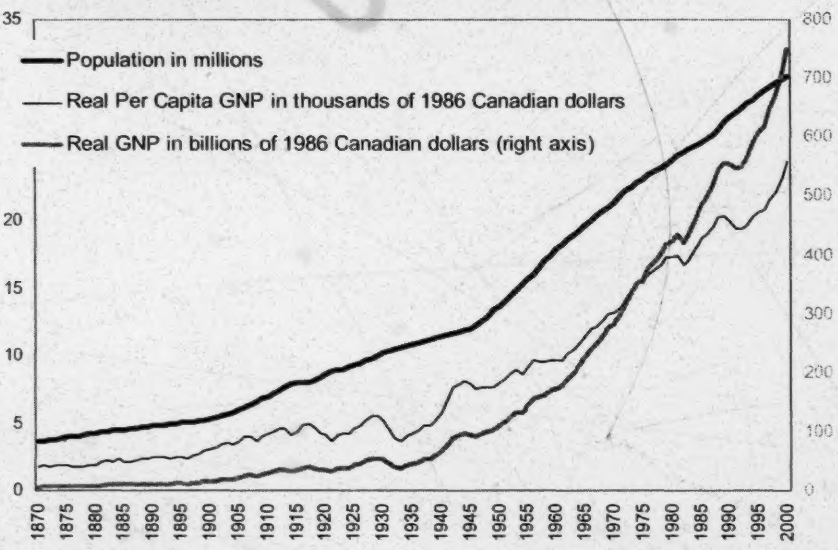
Prime Minister	Party	Elected	Resigned
Martin, Paul Edgar Philippe	Liberal	December 12, 2003	
Chrétien, Jean Joseph Jacques	Liberal	November 4, 1993	December 11, 2003
Campbell, A. Kim	Progressive Conservative	June 25, 1993	November 3, 1993
Mulroney, Martin Brian	Progressive Conservative	September 17, 1984	June 24, 1993
Turner, John Napier	Liberal	June 30, 1984	September 16, 1984
Trudeau, Pierre Elliott	Liberal	March 3, 1980	June 29, 1984
Clark, Charles Joseph (Joe)	Progressive Conservative	June 4, 1979	March 2, 1980
Trudeau, Pierre Elliott	Liberal	April 20, 1968	June 3, 1979
Pearson, Lester Bowles	Liberal	April 22, 1963	April 19, 1968
Diefenbaker, John George	Progressive Conservative	June 21, 1957	April 21, 1963
St. Laurent, Louis Stephen	Liberal	November 15, 1948	June 20, 1957
King, William Lyon Mackenzie	Liberal	October 23, 1935	November 14, 1948
Bennett, Richard Bedford	Conservative	August 7, 1930	October 22, 1935
King, William Lyon Mackenzie	Liberal	September 25, 1926	August 6, 1930
Meighen, Arthur	Conservative	June 29, 1926	September 24, 1926
King, William Lyon Mackenzie	Liberal	December 29, 1921	June 28, 1926
Meighen, Arthur	National Liberal and Conservative Party	July 10, 1920	December 28, 1921
Borden, Robert Laird	Unionist	October 12, 1917	July 9, 1920
Borden, Robert Laird	Conservative	October 10, 1911	October 11, 1917
Laurier, Wilfrid	Liberal	November 7, 1896	October 6, 1911

Figure 1. Hudson's Bay Company Annual Dividend, 1670 to 2000
Expressed as percent of par value until 1970 and as a percent of equity market value from 1961 to 2000.



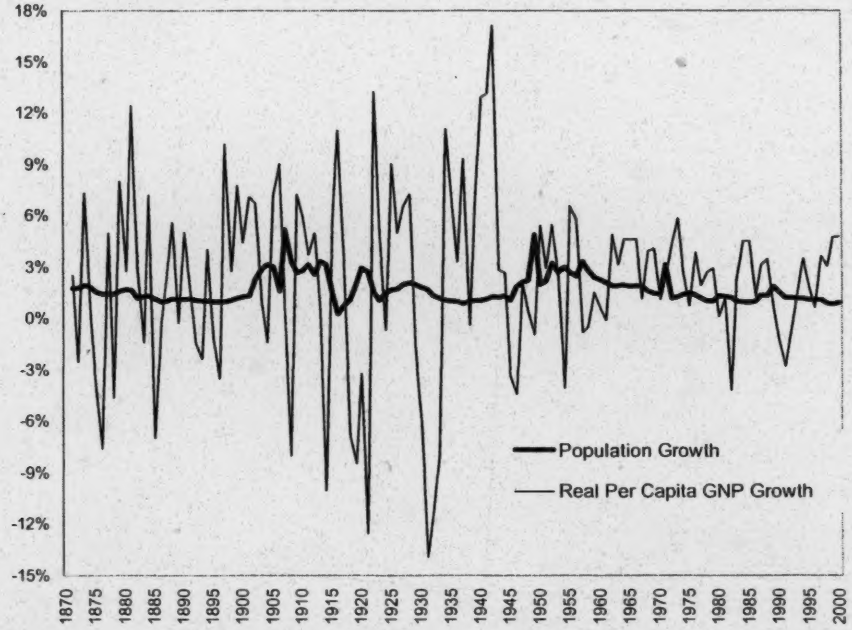
Source: Newman (1998) and Financial Post Historical Report for Hudson's Bay Company.

Figure 2. Overall Economy Growth, 1870 to 2000
Population in millions and *per capita* Gross National Product (GNP) in 1986 Canadian dollars are measured on the left axis. Total GNP in billions of 1986 Canadian dollars is measured on the right axis.



Source: Data up to 1926 are from Urquhart (1993). Later data are from Statistics Canada: Historical Statistics of Canada.

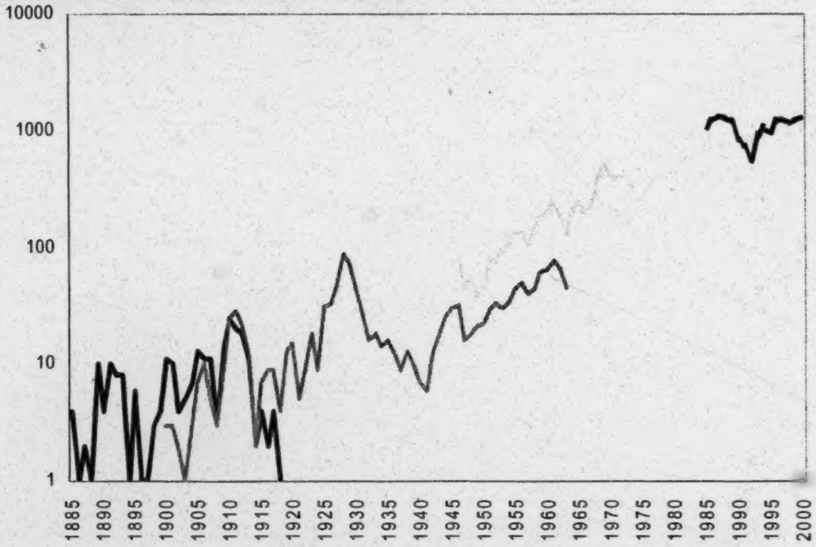
Figure 3. Economic Growth, 1870 to 2000
Annual growth rates in population and per capita GNP in 1986 Canadian dollars.



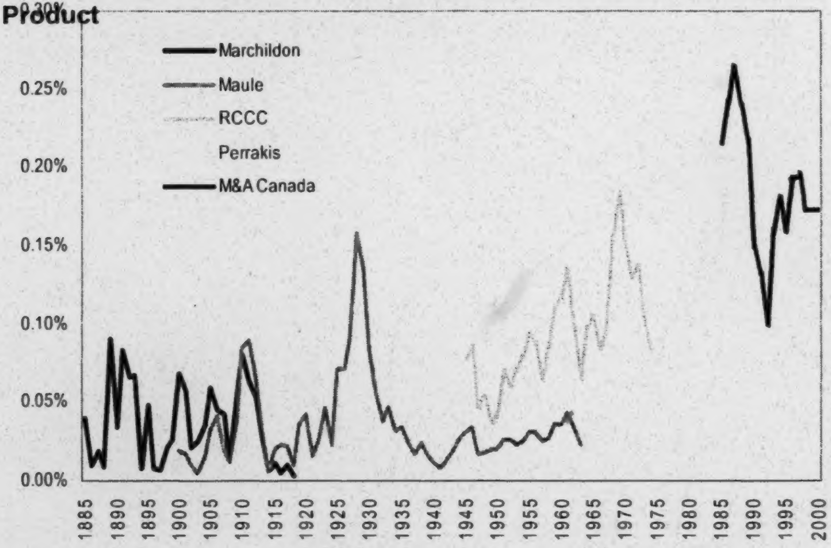
Source: Data up to 1926 are from Urquhart (1993). Later data are from Statistics Canada: Historical Statistics of Canada.

Figure 4. Merger and Acquisition Activity, 1885 to 2000
Number of mergers and acquisitions per million 1986 Canadian dollars of GNP.

Panel A. Raw Number of Transactions



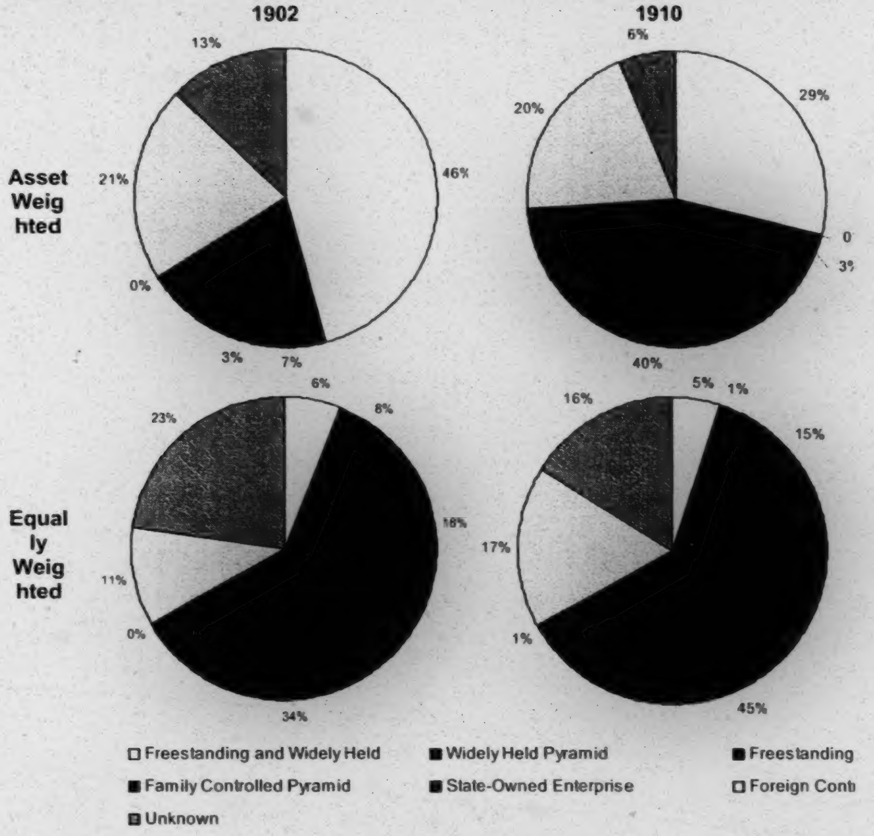
Panel B. M&A Transactions per Dollar of Real 1986 Gross National Product



Data for 1885-1918 are from Marchildon (1990), data for 1900-1963 are from Maule (1966), data for 1970-1986 are from Globerman (1977, Royal Commission on Corporate Concentration), and *data for 1985-2000 are from the Directory of M&A in Canada. Because discrepancies exist across different sources, we apply linear transformations to each overlapping period and move different series up or down to generate a single time series.*

Figure 5. The Control of Large Firms in the Early 20th Century

The importance of different categories of controlling shareholders in the top 100 firms in 1910 and the top 66 firms in 1902, weighted by total assets and by number of firms.

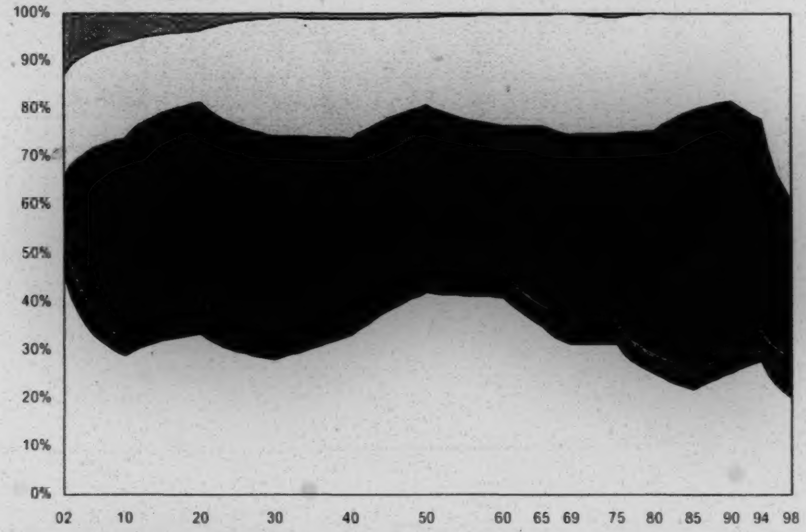


Note: Financial sector firms are excluded. Assets data are from annual reports. Control is assigned using information in annual reports, corporate histories and general histories of Canadian business.

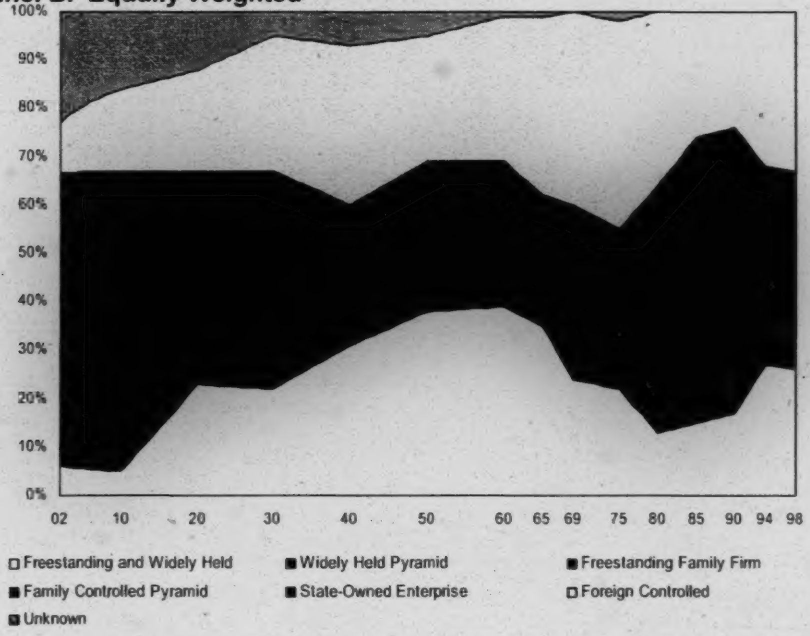
Figure 6. The Changing Control of Large Firms through the 20th Century

The importance of different categories of controlling shareholders in the top 100 firms from 1902 to 1998, weighted by total assets and by number of firms.

Panel A. Asset Weighted



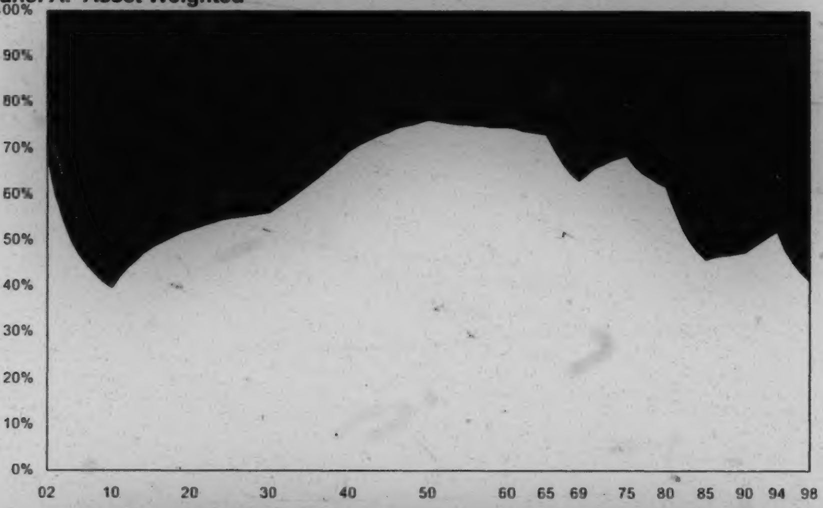
Panel B. Equally Weighted



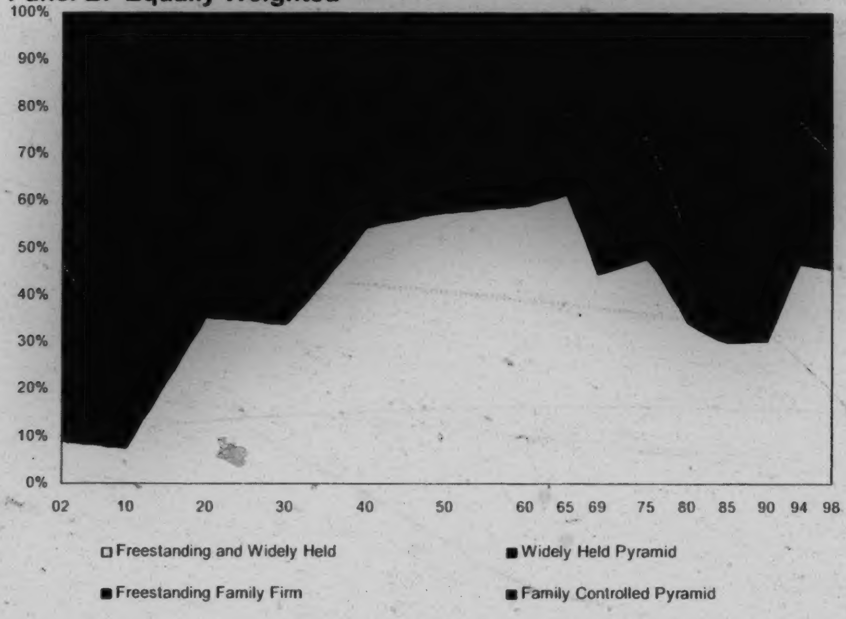
Sources: Past issues of *Statistics Canada's Directory of Inter-Corporate Ownership*, the *Financial Post, Canadian Annual Financial Review* and *Financial Post Corporate Securities*; supplemented by Baskerville and Taylor (1994), Bliss (1986), Francis 91988), Myers (1914), Naylor (1975), and individual corporate histories.

Figure 7. The Changing Control of Domestic Private-Sector Firms
The importance of different categories of controlling shareholders in the top 100 firms from 1902 to 1998, weighted by total assets and by number of firms. State-owned enterprises, multinational subsidiaries, and firms whose control is unclear are excluded.

Panel A. Asset Weighted

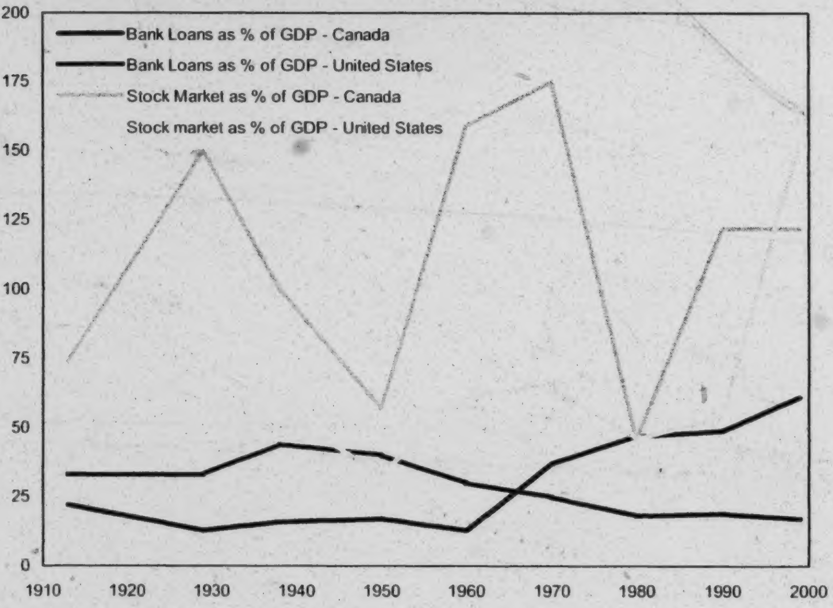


Panel B. Equally Weighted



Sources: Past issues of *Statistics Canada's Directory of Inter-Corporate Ownership*, the *Financial Post, Canadian Annual Financial Review* and *Financial Post Corporate Securities*; supplemented by Baskerville and Taylor (1994), Bliss (1986), Francis (1988), Myers (1914), Naylor (1975), and individual corporate histories.

Figure 8. The Size of the Financial System Relative to the Economy
Evolution of commercial and savings deposits (bank loans) and total market capitalization (stock markets), both as percentages of gross domestic product. Missing data on the size of the Canadian stock market in 1938 is estimated using the ratio of trading volume to market capitalization for other years.



Source: Rajan and Zingales (2004)

CHAPTER 3

FAMILY PYRAMIDS, FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH IN CANADA[76]

1. Introduction

The relationship between financial development and economic growth has long been a topic of interest to many finance scholars. Although some scholars (e.g. Lucas 1988) doubted the impact of financial development on economic growth, a growing body of literature has revealed a positive association between finance and growth (e.g. Goldsmith 1969, King and Levine 1993). Recent studies in both cross-country and time-series area further show that this positive association is mainly due to the supporting role of financial markets for economic growth (e.g. Beck, Levine and Loayza 2000, Rousseau and Wachtel 1998). Our paper expands the scope of these previous studies by introducing a third element: importance of (family) control pyramids.

Family-controlled pyramid group, one particular form of concentrated ownership, is found to exist in many countries. We find that, in Canada, many largest corporations were and are controlled by family pyramids. In this paper, we discuss the changes of Canadian family pyramids in the 20th century. We also attempt to examine the economy-level impact of these family pyramids. In particular, we look at: (1) whether Canadian family pyramids depend more on their groups' internal capital markets, or do they rely more on external financing; (2) whether there is any significant relationship between the importance of family pyramids and measures of economic growth in Canada.

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[76] The working paper version of this chapter is co-authored with Randall Morck and Bernard Yeung.

The rest of the paper is structured as follows: section II describes economic growth and financial development in Canada over the 20th century. We report simple correlation coefficients between finance and growth, and between economic growth and other macro variables. Section III includes three sub-sections. Section 3.1 describes the changes of family pyramids among the largest 100 Canadian corporations in the 20th century. Average movement, rise and fall of individual pyramids and M&A activities involving these pyramids are discussed. Section 3.2 addresses the external financial dependence of family pyramids. We use a multiple regression framework similar to the one used in Rajan and Zingales (1998) to analyze the interaction between financial dependence and financial development. Section 3.3 focuses on the relationship between family control and economic growth. We divide the 20th century into periods in which family pyramids have become more important and periods in which the importance of family pyramids has gone down. Measures of economic growth and financial development are compared across these two sub-samples.

II. Measuring Financial Development and Economic Growth

The relationship between financial development and economic growth has long been a topic of interest and debate, starting from at least Schumpter (1934), who recognized the potential importance of financial sectors in promoting economic growth. But many other researchers believe that financial development is relatively unimportant in determining economic development. For instance, Lucas (1988) declares that the finance-growth relationship is 'over-stressed.'

More recently, a growing body of literature, starting with Goldsmith (1969), examines the relevance of financial development and economic growth. Goldsmith (1969) reports a positive association between the size of a country's financial system and economic growth, using data for 35 countries.

King and Levine (1993) use three measures to examine the growth of 80 countries over the three decades of 1960 to 1989. These three variables are: liquid liability to GDP, used to measure the scale of financial intermediation; domestic credit provided by commercial banks, used to measure the development of a country's banking sector; and credit available to private sector, used to measure the allocation of domestic credit. King and Levine (1993) argue that the development of a country's financial market positively influences its economic growth. Extending upon these findings, Beck, Levine and Norman Loayza (2000) further find a robust, positive link between financial intermediary development and both real per capita GDP growth and TFP growth. Their findings echo those of Goldsmith (1969).

Carlin and Myer (2000) record a strong interrelationship between type of financial system, the characteristics of different industries, and their growth rates in different countries. They find that the expenditures on research and development rather than fixed capital formation effects economic growth.

In this section, we extend previous research and discuss how financial development and economic growth look like in Canada over the 20th century.

2.1 Measuring Economic Growth

The simplest measure of economic growth is per capita GDP growth. The per capita real GDP (in 1997 constant dollars) growth rate is defined as:

$$GR_t = \Delta ln(Q_t / L_t) \approx \frac{per\ capita\ RGDP_t - per\ capita\ RGDP_{t-1}}{per\ capita\ RGDP_{t-1}} \qquad (1.1)$$

where GR_t stands for fractional growth rate in year t, and $RGDP_t$ stands for the real value GDP (in 1997 constant dollars) in year t.

The second measure of economic growth we us is total factor productivity (TFP) growth. The overall growth in per capita GDP can be decomposed into three components: growth due to physical capital accumulation, growth due to human capital accumulation, and growth due to increased factor productivity (technology advance).

We start with a standard Cobb-Douglas production function:

$$
\begin{aligned}
&Q_t = A_t * L_t^{1-\beta} * K_t^{\beta} \\
&Q_t/L_t = A_t * (K_t/L_t)^{\beta} \\
&\rightarrow ln(A_t) = ln(Q_t/L_t) - \beta * ln(K_t/L_t) \\
&\rightarrow GR_t = \Delta ln(A_t) = \Delta ln(Q_t/L_t) - \beta * \Delta ln(K_t/L_t)
\end{aligned}
\tag{1.2}
$$

where Q is the output, K is the physical capital input (real PP&E), L is the human capital input (population), β is assumed to be 0.3[77], and change in lograthem A (technology) represents the growth rate of per capital total factor productivity.

Similar to Durnev *et al.* (2003), we assume that physical assets depreciate by ten percent a year. Let K_{t-10} be the aggregate book value of net PP&E (in 1997 dollars) in year t-10. PP&E in year t-9 is then:

$$K_{t-9} = (1-\delta)K_{t-10} + \frac{I_{t-9}}{(1+\pi_t)}$$

More generally, we apply the recursive equation:

$$K_{t+1} = (1-\delta)K_t + \frac{I_{t-1}}{\Pi_{i=0}^{t-1}(1+\pi_i)} \tag{1.3}$$

where *I* is the capital expenditure, computed as gross addition to fixed assets, and δ is the average depreciation rate, assumed to be 10% per year. Thus, PP&E in year t+1 is PP&E from year t minus 10 percent depreciation, plus current capital spending, denoted I_{t+1}, deflated to 1997 dollars using π, the fractional change in the seasonally adjusted Industrial Production Price Index (IPPI).

The starting-year PP&E is defined as:

$$K_{1880} = sum(I_{1871} : I_{1880})$$

---

[77] See Beck, Levine and Loayza (1999).

where *I* stands for investment in physical assets and all of these investments are deflated to 1997 constant dollars.

We measure capital, *K*, in two ways: fixed capital formation for manufacturing sectors, and total business expenditures on fixed capital formation. Similarly, we measure human capital also in two ways: the number of employees hired by manufacturing sector, and the total population in Canada.

Data between 1870 and 1926 are obtained from Urquhart (1986), data from 1927 through 1960 are obtained from Statistics Canada *Historical Statistics*, and data from 1961 through 2003 are obtained from *CANSIM* database.

Ideally, investment in physical assets should be measured as the gross fixed capital formation for the total business sector. Unfortunately, this variable is missing for the interim period from 1927 to 1955. Therefore, we use the capital expenditures made by manufacturing sector in lieu of the business sector. **Figure 1A** exhibits Gross Fixed Capital Formation (GFCF), in current dollars, for both the manufacturing sector and the total business sector.

Compared to the population, the data for the number of employees are less frequent, especially for early years. The data on number of employees in manufacturing are available since 1915 for roughly every 5 years till 1955, after which annual data are available. **Figure 1B** illustrates the increases in Canadian population and in the number of employees working in the manufacturing sector.

[Figure 1 goes here]

Figure 2 summarizes the two measures of economic growth: per capita GDP in 1997 constant dollars, and the total factor productivity growth rate. TFP growth measure is estimated using population and the value of PP&E in manufacturing sector[78].

[Figure 2 goes here]

2.2 Measuring Financial Development

Before assessing the relationship between financial development and economic growth, we outline how the level of financial development in Canada is measured.

We use three variables to examine the development of stock market: value of shares traded on Toronto Stock Exchange (TSX) over GDP, value of shares traded on both TSX and Montreal Stock Exchanges (MSE) over GDP, and market capitalization of TSX over GDP.

The values of shares traded and GDP are extracted from *Statistics Canada Historical Statistics* and *CANSIM* database. Values of shares traded on TSX are available from 1934 to 2003, and values of shares traded on MSE are available from 1937 to 1997[79]. Market capitalization of TSX is published in the *Annual Review of Toronto Stock Exchange*, and the reviews are available back to 1964.

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[78] A correlation of 0.98 is found between the TFP growth series estimated using employees data and the series estimated using the population data. The correlation between the TFP growth series estimated using PP&E in manufacturing sector and using PP&E in total business sector is about 0.95.

[79] Montreal Stock Exchange was restructured in 1998 so the numbers afterwards are deemed not comparable.

We cross check all three variables with similar variables provided by *World Development Indicators (WDI) database*. Values of each one of them are very similar[80] to those from *WDI*.

Credit to private sector as a percentage of GDP is used to capture the size of banking sector. Credit to private sector represents the amount of financial resources provided to private sector by banking industry. These financial resources may include loans, purchases of non-equity securities, and trade credits. This variable is directly extracted from *WDI*.

The private credit measure is not available for Canada over our entire sample period. In order to get a complete picture of how fast the banking industry has grown in the 20th century, we constructed two other measures for the banking industry. The first measure is the total assets of commercial banks as a percentage of GDP, and the second measure is the total value of non-government, non-bank loans provided by commercial banks as a percentage of GDP. The second measure reflects a fraction of the *WDI* private credit measure.

Figure 3A reports the development of Canadian stock markets based on three different measures. **Figure 3B** shows the development of Canadian banking industry based on credit to the private sector. The other two measures for banking industry are shown in **Figure 3C**.

[Figure 3 goes here]

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[80] *WDI database* is provided by the World Bank Group. Variables – market capitalization of listed companies (% of GDP), and stocks traded, total value (% of GDP) – are used to ensure our numbers are accurate. The two series from *WDI* only go back to 1988.

2.3 Other Macro Variables

All the papers we summarized at the beginning of this section conclude that financial development, measured by either the stock market liquidity or the maturity of banking sector, has a statistically significant and robust influence on a country's economic growth. However, one must be careful not to over-determine the effect of financial development upon economic growth. Indeed, there are other macro variables that impact a country's economic growth. We, therefore, take four other variables into account in subsequent analysis.

These four variables are:

- Social Development – higher education
- Innovation – research and development
- Government efficiency and corruption
- Trade Openness

Social Development: Higher education

The economic growth measures (per capita GDP growth and TFP growth) are commonly used in academia. However, they do not reveal the whole picture of the nation's development. For instance, quality of a nation's education system could be a valid measure of a nation's social development.

In order to assess the effectiveness of Canada's education system we use full-time university enrollments to population ratio, and post-secondary enrollments to population ratio. Data are obtained from Statistics Canada *Historical Statistics* for the years of 1861 to 1975 and from *CANSIM* for the years of 1976 to 2002. Before 1920 data are for each decade, between 1920 and 1955 data are available each five years, and since 1958 annual data are available. The two ratios are plotted in **Figure 4**.

[Figure 4 goes here]

Innovation

Stimulating innovation is a key task for achieving sustainable economic growth. King and Levine (2000) argue that the effect of financial development on growth is through active and innovative functions of private sector with specific reference to research and development. In particular, they argue that a country with more developed private sector is more likely to grow fast than another country with a less developed private sector.

The two variables used in our paper to capture the R&D intensity in Canada are:

o GERD = gross domestic expenditures on R&D as a percentage of GDP

o BERD = business expenditure on R&D as a percentage of GDP

All the values are taken from the *CANSIM database*. GERD is approximately the same as the variable "Research and development expenditure (% of GDP)" defined as in *WDI*.

If we contrast these two series we get a ratio of business R&D expenditures over total R&D expenditures. This ratio increases from about 30% in 1963 to around 45% in 2003. Even though Canada has lagged U.S. in its innovation spending, domestic business sector has taken a greater share in supporting new technology over the past four decades. All these ratios are shown in **Figure 5**.

[Figure 5 goes here]

Government Efficiency and Government Corruption

Government policy and efficiency also plays a role in determining a country's economic growth. In assessing Canadian government's efficiency, we first use a very common measure, SIZE, which is defined as total federal government expenditures over GDP. The data are obtained from *WDI* database, which is available for 1965 through 2000. The second measure we use is the ratio of gross debt of federal government over GDP. Gross debt of federal government is obtained from *CANSIM*.

According to **Figure 6A**, the gross debt of federal government sky rocked in the middle of the century, and the debt level increased again in the last decade of 20th century. Over the latter half of the 20th century, Canadian government's expenditures have shown a decreasing growth rate.

Another way to assess government efficiency is to look at inflation rates. Low inflation rates indicate efficient monetary policy a government employs. Two variables are used to measure Canadian historical inflation rates: the percentage change in Consumers Price Index (CPI), and the percentage change in GDP deflator. CPI data are obtained from *Statistics Canada Historical Statistics* for the years 1885-1975, and from *CANSIM database* for the years 1976-2003. **Figure 6B** displays inflations rates in Canada.

[Figure 6 goes here]

The efficiency of a government affects the development of a nation's economy, and possibly how well the business sector is run. If government officials are corrupted, business leaders may find it more rewarding to investing into rent-seeking activities rather than supporting new technology (e.g. Morck and Yeung, 2004). To capture the corruption of Canadian federal government, we introduce a binary variable, CPR. In particular, we look at whether the Prime Minister involves scandals over a particular period. For instance, Sir John Macdonald was thrown from office in 1873 because of the Pacific Railway scandal. Sir Robert Borden's government was in the center of scandals involving wartime profiteering. The Liberal Party of Canada, under the leadership of Sir Jean Chrétien, is under investigation for the infamous sponsorship scandals. The binary variable CRP (corruption) equals to one if the PM for the corresponding period was involved in profound scandals, and zero otherwise. **Table 1** reports the CRP assignments.

[Table 1 goes here]

Trade Openness

An economy that welcomes free trades with the rest of the world is more likely to thrive than otherwise. We proxy the openness of Canadian economy by using the following two measures: value of export of goods as a percentage of GDP, and the value of import of goods as a percentage of GDP. We also cross check the two similar measures provided by WDI to make sure that our variables are reasonably accurate.

Again, values of export/import of goods are obtained from Statistics Canada *Historical Statistics* and *CANSIM database*. And the change in the openness of Canada is displayed in **Figure 7**.

[Figure 7 goes here]

Table 2 provides univariate statistics for all the main variables: economic growth, financial development, higher education, innovation, trade openness and government efficiency. **Table 3** summarizes simple correlation coefficients between economic growth measures and one-year lagged measure of financial development, higher education, innovation, trade openness and government efficiencies.

[Table 2 goes here]

[Table 3 goes here]

III. Family Pyramids, Financial Development and Economic Growth

The previous section reviews the 'finance and growth' literature, and examines whether there is any strong relationship between financial development and measures of economic growth in Canada. In this section, we put the importance of family pyramids into the picture. We examine: (1) dependence of Canadian family pyramids on external financial markets, and (2) the relationship between the importance of family pyramids in Canada and the Canadian economic growth.

Many studies, such as La Porta *et al.* (1997), have documented the prevalence of concentrated ownership structure around the globe. Corporate groups controlled by wealthy families and individuals through pyramids are one particular type of concentrated ownership structure. As discussed in both Stangeland *et al.* (1994), Morck *et al.* (2004) and Attig *et al.* (2003), Canada hosts a large number of such groups, what we call 'family pyramids'. In section 3.1 we describe changes of Canadian family pyramids in the 20th century.

A typical family pyramid has a controlling shareholder – a wealthy family or individual - at its apex. This shareholder controls a number of listed firms by owning large blocks of voting equities or being able to exercise effective control through other means (e.g. corporate charter provisions for appointing a majority of board members). Each of these firms in turn controls more listed firms using similar mechanisms, and each of these next-tier firms in turn controls another number of firms. The control chain may go on many times and thus creates a corporate pyramid encompassing a huge number of listed firms. The shareholder at the apex is the ultimate controlling shareholder of all the listed firms in this pyramid, though her ownership commitment diminishes in firms going towards the bottom of the pyramid. All these firms form a business group, within which they may engage in various inter-firm dealings. Among other things, they invest in each other, do business with each other, guarantee each others' performance, hire each others' staff, license each others' technology and trademarks, and perhaps subsidize each other. An "internal" capital market, as well as internal markets in goods, services, and expertise, is thus created.

There has been extensive research on "internal" capital markets, though most focuses on conglomerates or groups with big banks or other financial intermediaries at the center of the group (e.g. Shin and Stulz, 1998; and Houston, James and Marcus, 1997, Morck and Nakamura, 1999). The "internal" capital markets of business groups, including family pyramids, is first analyzed only quite recently (see e.g. Khanna and Rivkin, 1999). "Internal" capital and other markets may be beneficial, especially for firms in developing countries, when external markets are imperfect or even dysfunctional. Following this argument, firms in business groups benefit by accessing capital on better terms than those available to freestanding firms[81]. However, for firms in a country with well-developed capital and other markets, such as Canada, this argument is problematic. In section 3.2 we analyze the relationship between financial dependence and firm growth for the largest Canadian corporations.

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[81] The "internal" capital markets formed by firms in a business group such as a pyramid may be beneficial for group firms and families controlling the group. However, it is less clear this benefits the countries. See Morck et al. (2005) in Journal of Economic Literature.

A family pyramid brings problems. At the micro level, the ultimate shareholder of a family pyramid is entrenched, in that she cannot be thrown out by public shareholders if she becomes incompetent or unduly venal. At the macro level, entrenched elites may engage in political rent-seeking to preserve institutions in their favor, and thus crates barrier for new firms to compete and grow (e.g. Olsen 1962; Morck, Stangeland, and Yeung 2000; Morck and Yeung 2004; and Morck, Wolfenzon, and Yeung, 2005). This retards economic growth. In section 3.3 we discuss the relationship between the importance of family pyramids and economic growth in Canada over the 20th century.

3.1 Family Pyramids

The Changes of Family Pyramids

Concentrated corporate ownership, including that featured in pyramid groups, is extensively studied in the corporate governance literature of the past two decades. La Porta *et al.* (1997) show that corporations in most countries except the US and UK, have concentrated ownership structures. Business groups are found to prevail in countries such as India, South Korea, and throughout Europe and Latin America. Among all kinds of business groups, pyramids controlled by wealthy families and individuals are the most substantial.

Canada is no exception. Morck, Percy, Tian and Yeung (2005) describe the ownership structure of the largest Canadian corporations in Canada over the entire 20th century. They state:

> *"At the beginning of the 20th century, pyramidal ownership structure, companies controlled by wealthy families or individuals, dominated the Canadian corporate sector, as in modern continental European countries. Over several decades, a large stock market, high taxes on inherited income, a sound institutional environment, and capital account openness accompany the rise of widely held firms. At mid-century, the Canadian large corporate sector was primarily freestanding widely held firms, as in the modern large corporate sectors of the United States and United Kingdom. Then, in the last third of the century, a series of institutional changes took place. These include a more bank-based financial system, a sharp abatement in taxes on large estates, a likely rise in the value of superior rent seeking skills, and foreign investment restrictions. These were accompanied by a decline in the importance of freestanding widely held firms and a commensurate rise in the prevalence of family pyramid groups."*

Extending their work, the current section analyzes changes in the importance of different sorts of Canadian business groups, the rises and falls of specific family pyramid groups, and the M&A activities of family pyramids.

The primary firm-level ownership and financial data sources are *Annual Financial Review* (for 1901 to 1940), *Financial Post Historical Reports* (for 1950 and 1960), *FP Survey of Industrials*, *FP Survey of Mines and Energies*, and the *Directory of Inter-Corporate Ownership* (all for 1965 to 2003). Due to the limited availability of old data, and the fact that the ICO directory is published biannually, we only look at the ownership data for each decade over the period of 1901-1960, and approximately every 5 years from 1965 onwards. **Figure 8** displays the importance of the largest 100 Canadian firms. The average total assets to GDP ratio is approximately 10 percent, and this ratio is fairly stable except for 1930 and 1940 in which total assets of these large corporations account for close to 20 percent of Canada's GDP.

[**Figure 8** goes here]

For each year we classify the largest 100 Canadian companies, ranked by total assets, into the following categories: widely held firms without controlling shareholder, firms controlled by a wealthy family (or individual) through a pyramidal structure, firms controlled by other widely held companies through a pyramidal structure, firms controlled by governments or government agencies, free-standing firms (i.e. not members of any business group) controlled by a wealthy family or individual, and firms controlled by foreigners. We follow La Porta et al. (1997) in defining "control" as the exercise of a 10% voting block in an otherwise widely held firm. Where more than one shareholder votes a block of 10% or more, control is attributed to the larger voting blockholder. In addition, we also take into account "effective" control due to, for example, corporate charter provisions permitting a family or individual to appoint a majority of the directors.[82]

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[82] For more details regarding the categorizing of top Canadian companies, please refer to Morck *et al.* (2005).

Table 4 summarizes changes in the control status of the largest 100 firms in Canada through the 20th century. **Figure 9** illustrates the rise and fall of independent widely held corporations, and the corresponding fall and rise of corporations controlled by wealthy families and individuals through family pyramids). We use ownership data for 16 annual points and infer the graphs using linear interpolation.

[Table 4 goes here]

[Figure 9 goes here]

Figure 8 displays markedly changing patterns of corporate control in Canada. These changes suggest that it may be possible ascertain the importance of group-specific characteristics, such as core businesses, managing styles of ultimate shareholders, and intra-group relations are in determining survival of different pyramids.

Canadian pyramid groups existed at the beginning of the 20th century. **Appendix 1** tabulates the rise and fall of some family pyramids. As we can see from this table, some family pyramids, such as Reichmann and Onex, are relatively young; but many other pyramids, such as Aitkin, Bronfman and Thomson, began long ago. Among the oldest dynasties, some (e.g. Cox group, etc.) did not survive the entire century. Their emergence typically corresponds to the development of 'new industries' such as railways and utilities. Their falls seem related to government policies, including nationalization and succession taxation. Pyramids that persist in Canada for many years exhibit dramatic changes in both the size and, more importantly, business strategies.

M&A Activities in the Top 100 Corporations in Canada

One major contribution of capital markets is that they provide active platforms for corporate control transactions. Takeovers, especially hostile takeovers, are a quick and effective way to remove inefficient top managers.

Before discussing merger activities involving the largest 100 Canadian corporations, we discuss mergers and acquisitions in Canada in an historical context. A single continuous and consistently assembled time series for the number of aggregate mergers in Canada does not exist. Our M&A data therefore come from different sources. Marchildon (1990) provides a series from 1885 through 1918. Maule (1966) provides a series from 1900 to 1963. The Royal Commission of Corporate Concentration (RCCC) publishes takeover numbers for 1945 through 1974. Globerman (1986) provide a time series data on Canadian M&A from 1970 to 1986[83], and for 1985 through 2000, data are available from Directory of Merger & Acquisition in Canada.

We create one spliced time series of Canadian M&A data using estimated linear transformations across overlap periods to adjust the endpoint of the previous series to mesh with the starting point of the current one. For example, Marchildon and Maule data both exist from 1900 to 1918. We use that period to 'predict' the Marchildon count as a linear transformation of the Maule count. We then adjust the Marchildon count for 1885 through 1900 using this transformation. This rescales M&A counts in earlier periods to mesh with M&A counts of more recent periods. This is clearly an arbitrary approach, and we recognize its severe limitations.

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[83] Checking the overlapping period between RCCC and Globerman (1986), we are fairly confident that they should be from the same source. We thus treat them as one series covering the period of 1945-1986.

The real size of the Canadian economy has grown substantially over the more than 100 years documented in this figure. Accordingly, the merger data must be placed in a suitable historical context. **Figure 10A** exhibits this spliced time series patter of historical mergers and acquisitions in Canada from 1885 to 2003. **Figure 10B** displays the same time series scaled by a standard measure of economy size: real GDP measured in billions of 1997 dollars. The data show four noticeable merger waves: (1) in late 1920s, (2) late 1960s to mid 1970s, (3) late 1980s, and (4) from mid 1990s to 2000.

While these first two measures, based on number of merger activities are the longest somewhat consistent financial activity time series available, results should be interpreted with caution. First, our splicing procedure is clearly arbitrary. Second, we have only M&A counts. Since the dollar values of M&A activity in each year are not available throughout the century, we cannot make a comparable somewhat consistent spliced time series of the dollar value of M&A. The fourth merger wave, which extends over the last several years of the 20th century, looks less important than earlier waves when we use the number of total transactions as the numerator. *M&A in Canada* not only records the total number of transactions of mergers and acquisitions, but also the total values for the years from 1985 to 2003, and **Figure 10C** compares these. The megadeals of the 1990s could well make the fourth wave larger than the previous ones, though Bliss (1986) provides figures for individual transactions in the first wave that suggest it too might well have been large relative to GDP.[84]

[Figure 9 goes here]

Above, we describe M&A across all Canadian companies. We now shift gear and explain how the top 100 corporations fared in the past century. Morck *et al.* (2005) rank the top one hundred Canadian corporations over the course of 1902-1998. To understand how merger waves affect these firms, we calculate the ratio of the total assets of firms acquired by particular types of bidders divided by the total assets of the top 100 firms. **Figure 11** describes these ratios.

[Figure 10 goes here]

Comparison with **Figure 10** shows that the M&A waves in the largest Canadian corporations differ from the M&A waves in all Canadian companies. In the top 100 corporations, there were two main takeover waves, the first one occurred roughly between from 1910s through 1930, and the second one peaking in the late 1970s. The first wave in Figure 10 may well encompass two separate waves, for the data in Figure 3 show one wave ending as World War one begins and another starting in the early 1920s. Since our data for the top 100 firms come once per decade, we may miss the relatively brief pause in M&A activity shown in **Figure 10**. Other lesser M&A waves in the top 100 firms appear in the immediate post World War II period and at the end of the century.

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[84] Unfortunately, we not have dollar values for mergers for early waves.

In the first M&A wave(s) (1910's-1930's), corporate assets decline in family pyramids but increase in widely held corporations. Conversely, in the second major wave (1970's -1980's) corporate assets rise in family pyramids but decline in widely held corporations.

These findings are further substantiated in **Appendix 1**, which summarizes the rise and fall of the family pyramids. During 1970s and early 1980s, many family pyramids, such as Bronfman group (EdperBrascan) and Desmarais group (Power), engaged in intensive acquisition activities to expand the scale and scope of their business groups. However, the trend among family pyramids shows early signs of reversing at the very end of the 20th century. Then, we see family pyramids, such as Bronfman group and Thomson group, downsizing and returning to their core businesses.

Corporate Canada undergoes dramatic changes in terms of ownership structure over the past century. Family-controlled pyramids become less important in the first two or three decades, but more important after late 1960s and early 1970s. These changes correspond to the two waves of intensive M&A activity: by widely held independent firms in early decades, and by family pyramids in late 1970s and early 1980s.

We also observe variations across individual groups. Although the general pattern of a fall and rise in the importance of family pyramids in Canada is evident, no single economic serves as a complete explanation. The emergence of some groups seems related to development of 'new industries' such as railways and utilities. The falls of others seem to be related to government policies.

3.2 Financial Dependence of Family Pyramid firms

Theoretical ideas about capital markets within a firm date back to at least Alchian (1969) and Williamson (1975). Empirical studies in this line of research include Lamont (1997) and Shin and Stulz (1998) on conglomerates, and Houston, James and Marcus (1997) on bank holding companies. These studies suggest that there are internal capital markets within a diversified firm, but that such markets are not always perfect.

"Internal" capital markets in business groups, as opposed to unitary firms, may play a positive role in emerging markets. Khanna and Yafeh (2000) look at various channels of risk sharing among business groups, including family pyramids. They detect profit sharing through intra-group trade in some countries, though the magnitude is small. They also find intra-group loans associated with substantial liquidity smoothing. Khanna and Rivkin (1999) propose that, in developing countries with inefficient external markets and weak institutions, business groups can add value. They find group affiliation correlated with superior firm performance in economies like India, Indonesia and Taiwan.

Some other studies focus more on the dark side of business groups. One of the main ideas is that business groups, especially pyramids, are associated with private benefits of control for controlling shareholders (See Dyke et al. 2002 and Nenova 2003). These private benefits might derive from self-dealing, which Johnson *et al.* (2000) call "tunneling". For example, Claessens, Djankov, Fan and Lang (1999) find evidence consistent with tunneling in East Asian countries; and Bae et al. (2002) find evidence consistent with tunneling in Korea.

Other work supports the view that "internal" capital markets can be a good thing for business group member firms, especially for emerging markets, where flawed external capital markets impose *de facto* credit constraints on freestanding firms. This argument suggests that firms belonging in business groups should dominate in the earlier decades when the financial markets are less well-developed, while freestanding firms should dominate in the later decades when the financial system is highly developed. However, Rajan and Zingales (2003) show that financial development is not monotonic in many countries. Financial systems in much of Europe were quite highly developed at the beginning of the 20th century, then decayed or were dismantled in subsequent decades, and were resurrected near the end of the century. We clearly cannot assume that Canadian financial development was necessarily always less advanced in earlier periods.

To examine family pyramids' dependence on external financial markets, we adapt an econometric technique from Rajan and Zingales (1998). They use American firm-level data on external financing to identify industries more dependent on external financing. They then examine the growth rates of firms in external financing dependent industries in other countries to see which country characteristics matter in promoting financial development. That is, they regress

$$\begin{aligned} \mathit{Industry\ Growth}_{j,k} = {} & \alpha + \beta_1 \mathit{Country\ \ Indicator} + \beta_2 \mathit{Industry\ \ External\ \ Dependence} \\ & + \beta_3 \mathit{Country\ \ Financial\ Development} \times \mathit{Industry\ \ External\ \ Dependence} \\ & + \beta_4 \mathit{Industry\ j\text{'}s\ share\ in\ country\ k} + \varepsilon_{jk} \end{aligned}$$

and use the last coefficient to make inferences about the effects of different national institutions on external finance dependent firm's ability to raise funds. They find that "*ex ante* development of financial markets facilitates *ex post* growth of sectors that depend on external finance."

We adapt this to a time series regression of data on a single country: Canada. We take membership in a group as potentially indicative of access to capital via "internal" capital markets, and hence of freedom from external capital dependence. Rather than look at variation in institutions across countries, we look at variation in institutions through time in Canada. We then regress

$$\begin{aligned} \mathit{Group\ \ Growth}_{j,k} = {} & \alpha + \beta_1 \mathit{Period\ \ Indicator} + \beta_2 \mathit{Group\ \ Indicator} \\ & + \beta_3 \mathit{Period\ \ Characteristics} \times \mathit{Group\ Characteristics} + \varepsilon_{jk} \end{aligned} \tag{1.4}$$

to see how different institutions affect the micro-level financial dependence of Canadian firms. In this section, we investigate whether firms that depend more on external finance (i.e. firms that do not belong to any pyramid groups) grow faster than firms that can rely on internal capital markets, during (or after) the times when Canadian financial markets experience more development. Thus, the particular 'period characteristic' we look at is financial development, and the particular 'group characteristic' we examine is a firm's dependence on external financing.

The dependent variable, *Group Growth*, is measured in two ways: (1) the annual compound growth rate of total assets for each type of firm j, in each time period *k*, and (2) the annual growth rate of average assets per firm for type *j* in period *k*.

We consider fifteen periods based on the sixteen annual data points described in section 3.1. We hope to fill in more data points in a future draft. Dependence on external financial markets is assumed to be determined by whether a firm belongs to a pyramid group. We start with all the firms in our basic sample, top 100 corporations in Canada over the years from 1902 to 2003. We first drop firms controlled by government agencies, firms controlled by foreign investors, and firms whose ultimate shareholders cannot be clearly identified because their access to external capital is uncertain. We then categorize firms that remain in the sample into different types: firms that belong to pyramid groups (controlled by families or widely-held independent firms), and firms do not belong to pyramid groups (widely held independent firms and freestanding firms controlled by families). We focus on the comparison between widely held firms and firms controlled by family pyramids. We consider freestanding firms controlled by families and firms controlled by corporate pyramids (pyramids whose apex firm is widely held) in robustness check. We use a dummy variable, DEP, to identify a firm's independence of external financing. DEP equals one if a firm belongs to a family pyramid group, zero otherwise.

Rajan and Zingales (1998) use market capitalization and private credit to assess each country's financial development. Precisely comparable variables are not available for Canada through the century, so we use three variables to measure financial development:

(1) Stock market development is measured using value of shares traded on TSX;
(2) Banking industry development is measured using total bank assets;
(3) Overall financial development is measured using the sum of (1) and (2).

Regression results are summarized in **Table 5**. None of the interaction terms between financial dependence and financial development is statistically significant. There is no indication whether Canadian corporations belonging to family pyramids reply more on internal capital markets or on external financing. This is consistent with the "internal" capital markets view of the purpose of business groups not applying to Canada, at least across the whole 20th century.

[Table 5 goes here]

3.3 Family Pyramids and Economic Growth

Morck and Yeung (2004) and Fogel (2004) conduct a cross-country empirical analysis of the relationship between the importance of family ownership over large business groups in a nation and the nation's economic development. They propose a possible interrelation between corporate ownership, government corruption, and the growth of the economy and argue that the presence of family ownership creates barrier to development, both social and economic.

We use the percentage of top 100 corporations that belong to family pyramids as our main variable to represent the importance of family pyramids in Canada. Other variables, economic growth, financial development and macro-economy control variables, are as defined in section II.

To address the change in the importance of family pyramids we construct a dummy variable, *OWN*. For a particular year *t*, OWN_t equals 1 if the importance of family pyramids has increased, 0 if the importance of family pyramids has decreased. Since we have annual ownership information for only 16 years between 1902 and 2003, we assume that if the importance of family pyramids has increased (decreased) over a period, then it has increased (decreased) in each and every year of that period with equal rates. The entire 20th century is thus divided into two sub-samples using indicator *OWN*.

Table 6 summarizes the univariate statistics of economic growth, financial development and other macro variables for the two sub-samples, the one in which family pyramids have grown, and the other in which family pyramids have declined. We can observe from **Table 6** that in the time when family pyramids had grown to be more important, Canada tend to suffer from low economic growth, slow development of its stock market, low investment in research and development, low level of trade openness, and high inflation. This is consistent with the arguments made by Morck and Yeung (2004) and Fogel

(2005) that family control creates barrier to social and economic development. We recognize that this analysis is preliminary and hope to provide more sophisticated tests in a future draft.

[Table 6 goes here]

Next, we employ multiple regressions to examine the relationship between finance and growth, taking the fall and rise of family pyramids into consideration. This model is similar to equation (1.4), but we add two additional variables: (1) the dummy variable *OWN* to indicate if, in year t, the importance of family pyramids rises, and (2) the product of *OWN* and financial development to capture the interaction between the importance of family pyramids and financial development. Again, we control for other macro variables, *X*, that may influence economic growth.

$$\begin{aligned} Growth_t &= \beta_0 + \beta_1 Finance_{t-1} \\ &\quad + \beta_2 OWN_{t-1} + \beta_3 OWN_{t-1} \times Finance_{t-1} + \gamma X_{t-1} + \varepsilon_t \end{aligned} \qquad (1.5)$$

Regression results are summarized in **Table 7**. It shows that, although there is an average tendency for family pyramids to grow when economic growth abates, the importance of family pyramids does not statistically significantly affect growth; nor does it have a statistically strong influence on the relationship between finance and growth.

[Table 7 goes here]

VI. Conclusions and Discussion

The relationship between financial development and economic growth is extensively studies in both cross-country and time-series analyses. Empirical evidence shows a robust positive association between finance and growth, but the causal direction of this association is still debated in the literature. In the first part of this paper, we analyze both the association and the causality between financial development and economic growth in Canada.

We measure economic growth using both rate of real per capita GDP growth and total factor productivity growth. While the first measure considers overall economic advances, the second measure focuses on economic growth due to improvement in technology. In the 20th century, real per capita GDP in Canada grows at roughly 3 percent annually, more than half of which is from technology advances. Canada's level of financial development is assessed using various measures. For stock markets, we consider both the value of shares traded on TSX and the market capitalization of those shares. The ratio of these two values is also used as a proxy for the liquidity of the stock markets. For the banking industry, we consider credit provided by banks to the private sector, general loans made by the banks, and the total assets of commercial banks.

Besides financial development, a country's economic growth is influenced by many other factors. We consider post-secondary education, investments in research and development, trade openness and government efficiency to control for these other factors. To measure government efficiency, we consider the size of the government, its total debt and inflation rates. We also construct an indicator variable to capture the corruption of federal government. In general, measures of stock market development are positively associated with economic growth, but the association between banking development and growth is negative. OLS regression results do not show statistical significance between finance and growth, especially when we control for all other macro variables as discussed.

Business groups, especially family-controlled pyramids, are shown to be important in the large corporate sector in Canada through much of the 20th century. In the second part this paper, we examine the importance of Canada's family pyramids, the development of its financial system, and its economic growth in a historical perspective.

We document that, on average, family pyramids control more than 16 percent of the largest Canadian corporations in the 20th century, though this ratio varies from about 7 percent in 1950s to as high as about 40 percent in 1910s and about 26 percent at the century's end. Besides the average pattern of changes of family pyramids, we compile a table in which we discuss the rise and fall of some individual family pyramids – all were, have been, or still are the largest business groups in Canada.

We examine possible links between family pyramids, financial development and economic growth. We do this in two ways. Firstly, we address the issue of the possible external financing independence of family pyramid firms by adapting a model proposed by Rajan and Zingales (1998) in a cross-country analysis. We do not find statistically significant evidence that Canadian corporations controlled by family pyramids rely on internal capital markets to prosper relatively during periods of financial underdevelopment. Secondly, we address the relationship between the importance of family pyramids and economic growth. Family pyramids are associated with serious governance problems, and obstacles against new firms growing and competing. We believe that, if such argument hold, we should observe a significantly negative relationship between the importance of family pyramids and measure of economic growth. By dividing the 20th century into two sub-samples using the rise and fall of family pyramids, we are able to examine this relationship. The evidence suggests that, though in the presence of more family pyramids Canada tend experience slow growth and slow financial development, the tendency is not statistically significant.

We recognize that these findings are highly preliminary, and hope to provide more reliable evidence in future drafts.

One limitation of this paper is that we have only 16 annual points of data for family pyramids. Although collecting historical records can be challenging and time-consuming, more data will certainly improve the accuracy of our analyses. We propose to collect more information about the largest Canadian firms, and also to decrease data frequency.

Another limitation is that we have not considered other institutional factors such as securities regulations to protect outside shareholders. **Appendix 2** outlines major initiatives in this aspect. But certainly, more work than simple coding is needed in order to incorporate securities regulations into the analysis of family pyramids and their impacts on macro development.

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Figure 1: The Increase of Physical Capital and Human Capital in Canada

Figure 1A: Gross fixed capital formation (GFCF) in Canada, in current dollars.

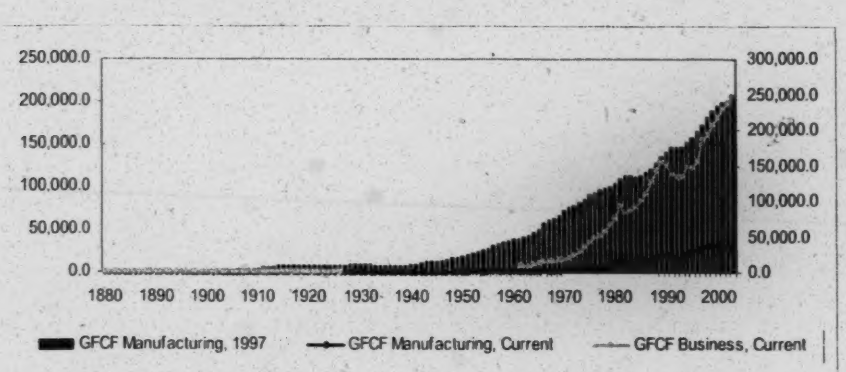


Figure 1B: Changes in Canadian population and the number of employees working in the manufacturing sector.

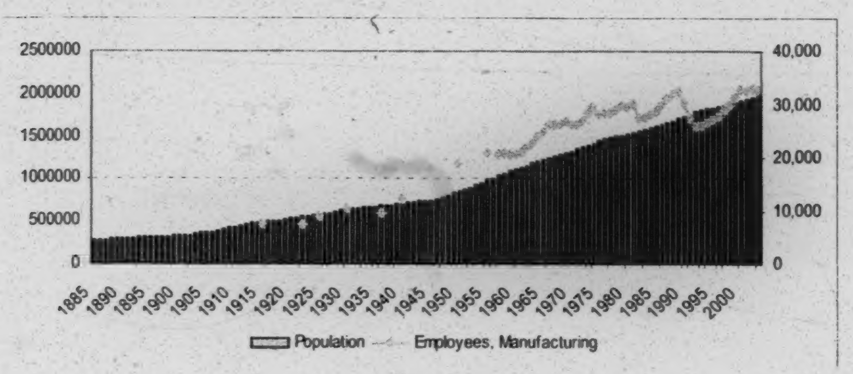


Figure 2: Economic Growth in Canada

This graph shows the two economic growth measures: the growth rates in per capita GDP in 1997 constant dollars, and the total factor productivity (TFP) growth rates. The first variables measures total economic growth, while the second variable measures economic growth due to innovation, or factors other than physical and human capital inputs. All data are obtained from Statistics Canada (Historical Statistics and CANSIM).

Figure 2A: Per capita real GDP and its growth rate.

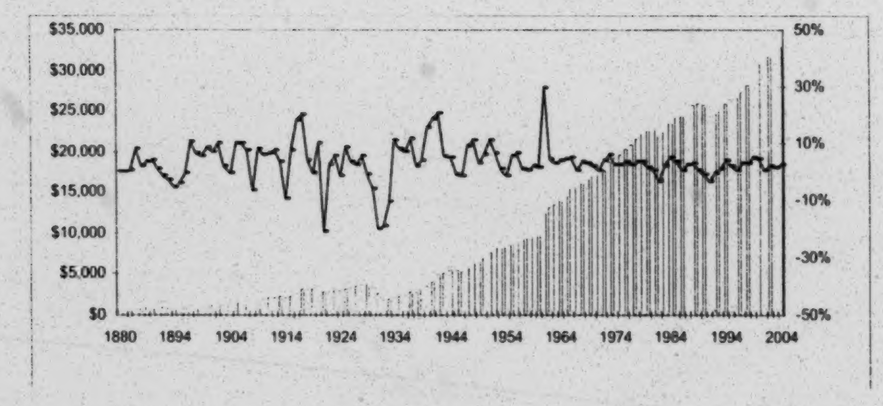


Figure 2B: Per capita real GDP and TFP growth rate.

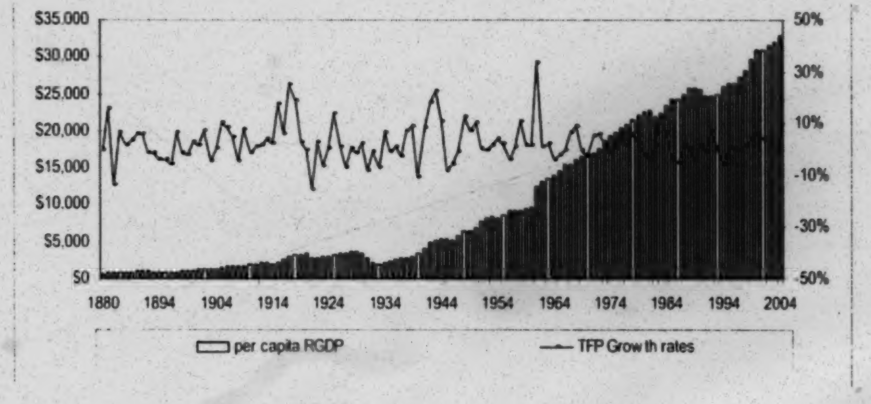


Figure 3: Development of Financial Markets in Canada

Figure 3A: Development of Canadian stock markets.

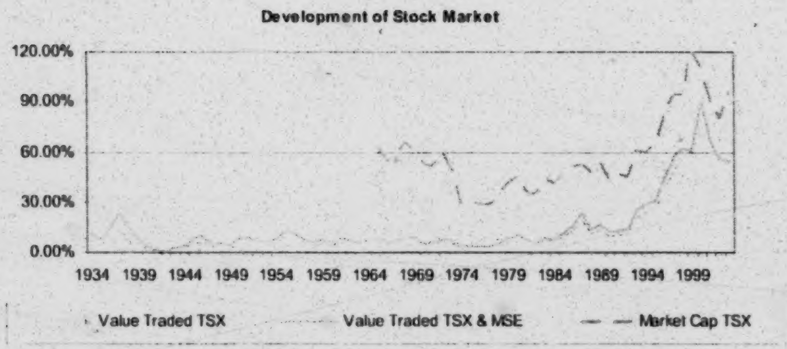
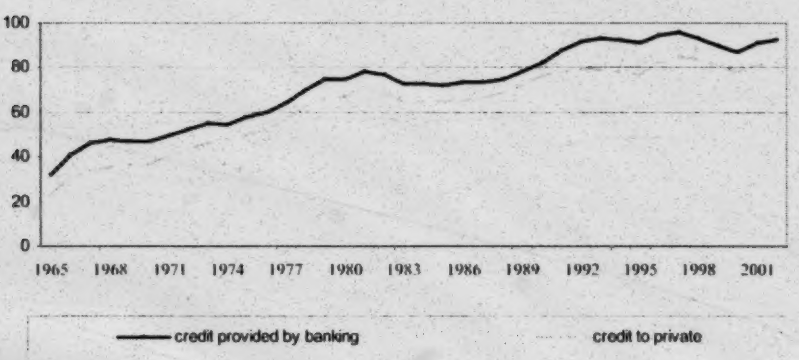


Figure 3B: Credit provided by banking industry as a percentage of GDP.



Source: WDI database.

Figure 3C: Development of Canadian banking sector: assets of chartered banks, and the general loans provided by chartered banks.

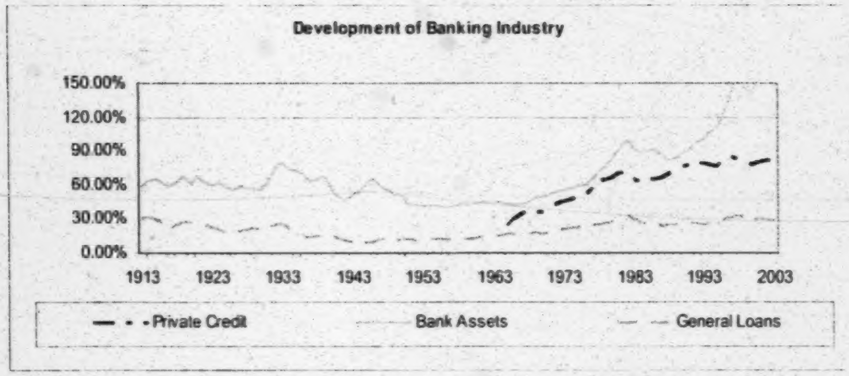


Figure 4: Post-secondary Education in Canada

The two variables used to represent higher education in Canada are the percentage of population that is full-time students enrolled in universities, and the percentage of total population that is enrolled in all types of post-secondary institutions. Data from 1861 to 1975 are from Statistics Canada Historical Statistics, and data from 1976 to 2002 are from CANSIM database.

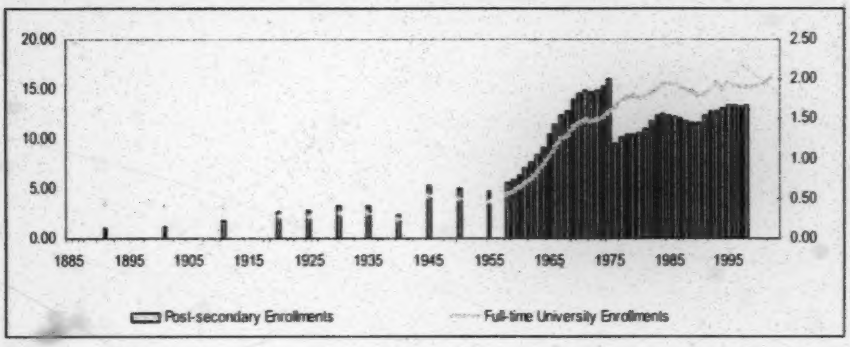


Figure 5: Research and Development Expenditures in Canada

Figure 5A: Expenditures on R&D, standardized by current GDP.

GERD = gross expenditures on R&D as a percentage of GDP
BERD = business expenditure on R&D as a percentage of GDP

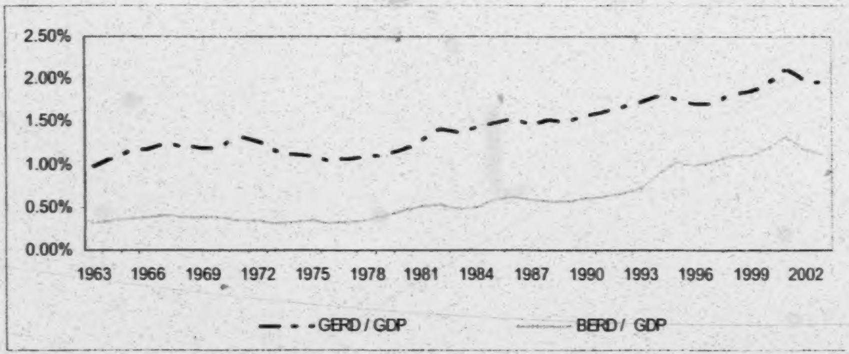


Figure 5B: Proportion of domestic business expenditures on R&D compared to domestic total expenditures on R&D.

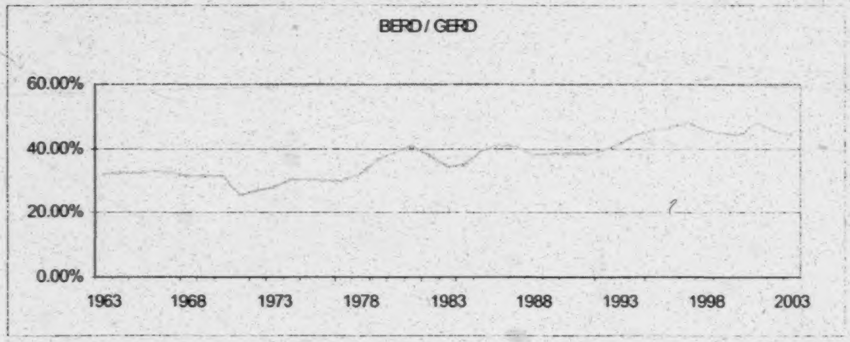


Figure 6: Canadian Government and Government Corruption

Figure 6A: Size of the Canadian government.

Two variables are used to measure the size of the government. The first variable is the ratio of government expenditures against current GDP, and the second variable is the ratio of government debts against current GDP.

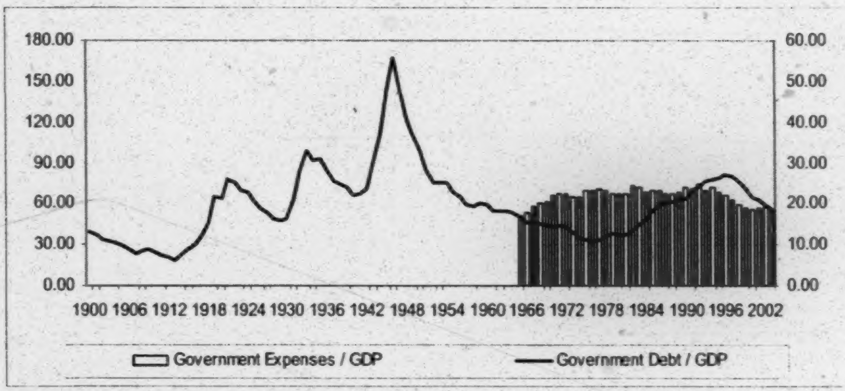


Figure 6B: Historical Inflation rates in Canada.

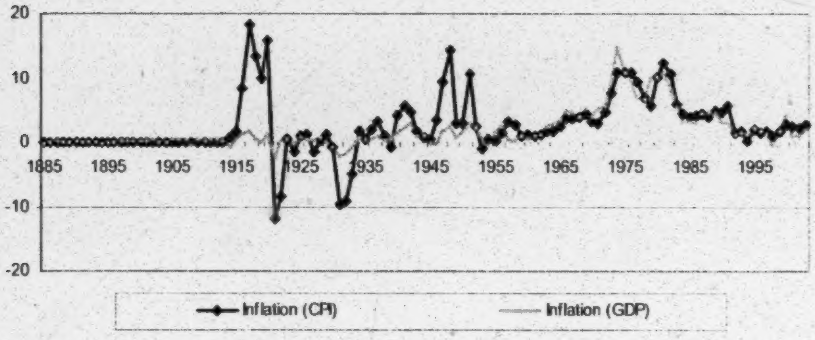


Figure 7: Trade Openness of the Canadian Economy

Two variables are used to measure the openness: value of exports / GDP, and value of imports / GDP.

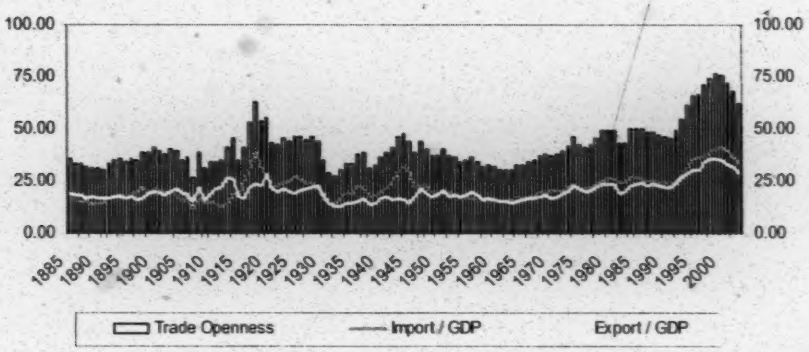


Figure 8: Importance of Top 100 Corporations

This graph illustrates the total assets of top 100 firms as a fraction of Canada's GDP. The average total assets to GDP ratio is approximately 10 percent.

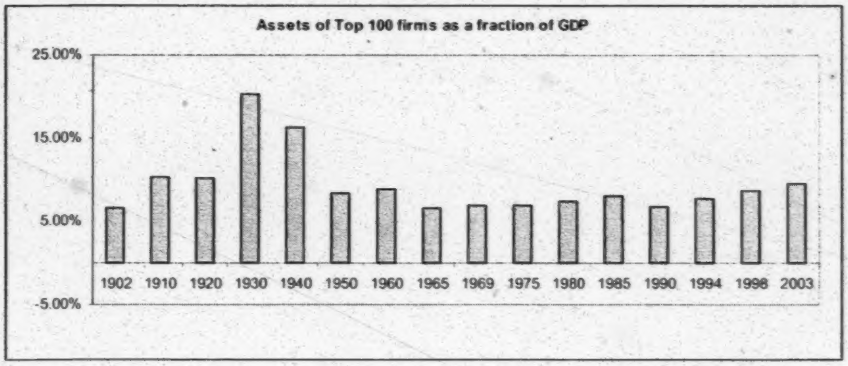


Figure 9: Changes in Corporate Control in Canada

This graph illustrates the changes in corporate control in Canada over the course of 20th century. The family-controlled corporations are indicated in red, while widely held firms without controlling shareholders are indicated in blue.

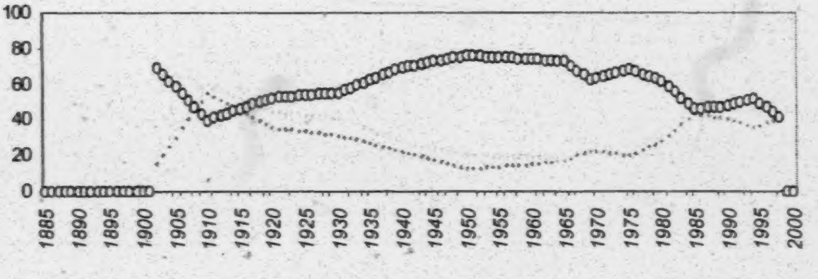


Figure 10: M&A Activities in Canada

Figure 10A: Number of mergers and acquisitions in Canada. Spliced time series data.

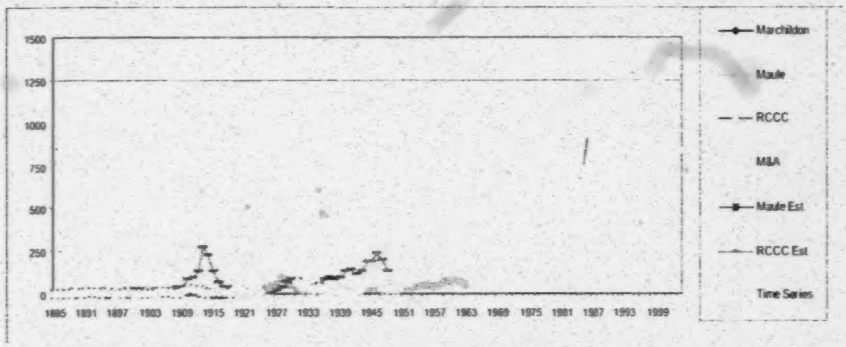


Figure 10B: Number of mergers and acquisitions in Canada, standardized using Gross Domestic Product, in billions of 1997 constant dollars.

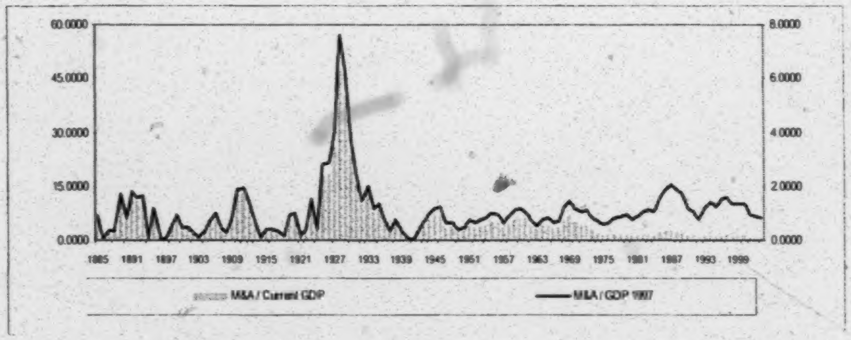


Figure 10C: Value of mergers and acquisitions in Canada: 1985 - 2003, standardized by current Gross Domestic Product.

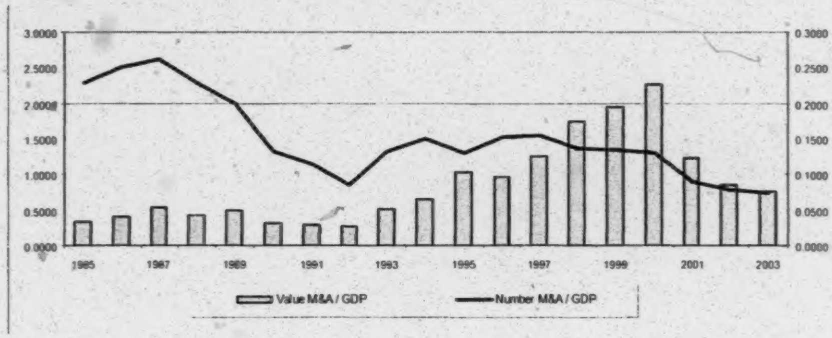


Figure 11: Takeover Activities for the Top 100 Corporations

This graph illustrates the takeover activities conducted within the top 100 Canadian corporations in the 20th century.

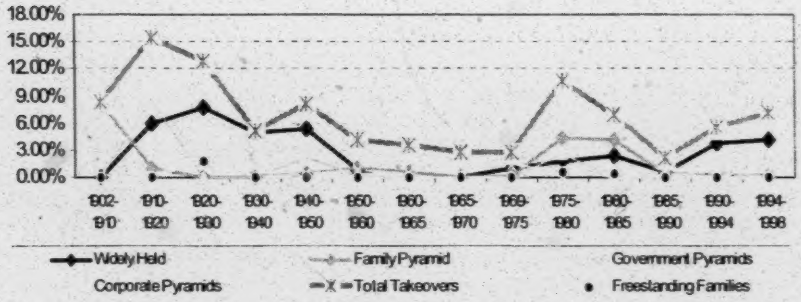

18.00%
15.00%
12.00%
9.00%
6.00%
3.00%
0.00%
1902-1910
1910-1920
1920-1930
1930-1940
1940-1950
1950-1960
1960-1965
1965-1970
1969-1975
1975-1980
1980-1985
1985-1990
1990-1994
1994-1998
Widely Held
Family Pyramid
Government Pyramids
Corporate Pyramids
Total Takeovers
Freestanding Families

Table 1: Scandals Involving the Canadian Federal Governments

An indicator variable, CRP, is introduced to measure the inefficiency of Canadian federal government. CRP equals 1 if Prime Minister was involved in scandals, 0 otherwise.

Prime Minister	Party	Elected	Resigned	Ownership Matrix	CRP
John A. Macdonald	Conservative	July-01-1867	Nov-05-1873	.	1
Alexander Mackenzie	Liberal	Nov-05-1873	Oct-08-1878	.	0
John A. Macdonald	Conservative	Oct-08-1878	Jun-06-1891	.	1
John Abbott	Conservative	Jun-06-1891	Nov-24-1892	.	1
John Thompson	Conservative	Nov-24-1892	Dec-12-1894	.	1
Machenzie Bowell	Conservative	Dec-12-1894	Apr-27-1896	.	1
Charles Tupper	Conservative	Apr-27-1896	Nov-07-1896	.	1
Wilfrid Laurier	Liberal	Nov-07-1896	Oct-06-1911	1	0
Robert Borden	Conservative	Oct-06-1911	Jul-10-1920	2	1
Arthur Meighen	Conservative	Jul-10-1920	Dec-29-1921	3	0
William LM King	Liberal	Dec-29-1921	Aug-07-1930	3	0
Richard Bennett	Conservative	Aug-07-1930	Oct-23-1935	4	0
William LM King	Liberal	Oct-23-1935	Nov-14-1948	5	0
Louise St. Laurent	Liberal	Nov-14-1948	Jun-21-1957	6	0
John Diefenbaker	PC	Jun-21-1957	Apr-20-1963	7	0
Lester B. Pearson	Liberal	Apr-20-1963	Apr-20-1968	8	1
Pierre Trudeau	Liberal	Apr-20-1968	Jun-04-1979	9, 10	0
Joe Clark	PC	Jun-04-1979	Mar-03-1980	10	0
Pierre Trudeau	Liberal	Mar-03-1980	Jun-30-1984	11	0
John Turner	Liberal	Jun-30-1984	Set-17-1984	11	0
Brian Mulroney	PC	Set-17-1984	Jun-25-1993	12,13	1
Kim Campbell	PC	Jun-25-1993	Nov-04-1993	13	1
Jean Chrétien	Liberal	Nov-04-1993	Dec-12-2003	14, 15	1
Paul Martin	Liberal	Dev-12-2003		16	0

Sources: Michael Bliss, 2004, Right Honorable Men. George Bowering, 2000, Egotists and Autocrats. Canadian Encyclopedia.

Table 2: Summary Statistics of the Main Variables

This table reports univariate statistics of the main variables used in the analysis of Finance and Growth.

Variable Name	Mean	Median	Minimum	Maximum	Std. Dev.	Skewness	Count
Economic Growth							
Per capita GDP Growth	3.39%	3.26%	-20.81%	29.53%	0.0679	-0.2099	118
Total Factor Productivity Growth	2.37%	1.54%	-15.34%	33.40%	0.0709	1.1161	118
Financial Development: Stock Markets							
Market Cap (TSX) / GDP	57.68%	52.30%	28.84%	120.66%	0.2294	1.0756	39
Value of Shares Traded (TSX) / GDP	12.99%	5.96%	0.57%	90.05%	0.1774	2.5492	70
Value of Shares Traded (TSX & ME) / GDP	15.34%	8.16%	1.00%	90.05%	0.1811	2.3477	70
Turnover of Shares (TSX)	26.66%	20.09%	7.86%	81.63%	0.2033	1.2264	39
Financial Development: Banking							
Credit to Private Sector / GDP	63.01%	66.73%	23.44%	85.09%	0.1762	-0.6697	39
Bank Assets / GDP	70.11%	61.20%	40.05%	155.56%	0.2891	1.5268	91
Bank General Loans / GDP	20.84%	21.16%	9.70%	33.48%	0.0682	-0.0124	91
Education							
Post-secondary Enrollments / Population	9.80%	11.53%	1.06%	15.99%	0.0425	-0.7002	56
Full-time Univeristy Enrollments / Population	1.33%	1.56%	0.23%	2.03%	0.0062	-0.5807	52
Innovation							
Business R&D Investments / GDP	0.61%	0.52%	0.31%	1.33%	0.0030	0.9742	41
Total R&D Investments / GDP	1.44%	1.42%	0.97%	2.11%	0.0031	0.4387	41
Openness							
(Imports + Exports) / GDP	41.93%	38.73%	26.53%	76.52%	0.1076	1.4524	119
Government Efficiency / Corruption							
Government Consumption / GDP	21.80%	22.41%	16.96%	24.93%	0.0199	-0.7943	39
Debt of Federal Government / GDP	59.91%	59.45%	18.87%	166.97%	0.2682	1.2197	104
Inflation (CPI)	3.32%	2.61%	-11.97%	18.18%	0.0501	0.0978	90
Inflation (GDP deflator)	1.92%	0.85%	-2.49%	14.89%	0.0294	1.9671	119

Table 3: Correlation Matrix of the Main Variables

This table reports simple correlation coefficients between economic growth and one-year lagged measures of financial development, social development, innovation, openness, and government efficiency in Canada.

	Per Capita GDP Growth			Total Factor Productivity Growth		
	Correl	p-value	Count	Correl	p-value	Count
Financial Development: Stock Markets						
Market Cap (TSX) / GDP	0.217	0.234	38	0.041	0.838	38
Value of Shares Traded (TSX) / GDP	**0.161**	0.027	69	**0.342**	0.004	69
Turnover of Shares (TSX)	0.066	0.381	38	0.057	0.281	38
Financial Development: Banking						
Credit to Private Sector	-0.268	0.100	38	-0.137	0.403	38
Bank Assets	-0.090	0.337	90	-0.101	0.223	90
Bank General Loans	**-0.219**	0.033	90	-0.089	0.295	90
Education						
Post-secondary Enrollments / Population	-0.041	0.839	55	0.086	0.572	55
Innovation						
Total R&D Investments / GDP	-0.155	0.273	40	0.055	0.809	40
Openness						
(Imports + Exports) / GDP	-0.096	0.375	118	-0.019	0.903	118
Government Efficiency / Corruption						
Government Consumption / GDP	-0.202	0.234	38	-0.092	0.547	38
Debt of Federal Government / GDP	0.054	0.652	103	-0.091	0.243	103
Inflation (CPI)	0.049	0.563	89	0.182	0.084	89
Per capita GDP	-0.076	0.412	118	0.017	0.859	118

Table 4: Evolution of the Ownership Structure: Summary Statistics

This table summarizes the composition of top 100 corporations in Canada over the period of 1902-2003. Independent corporations are those without controlling shareholders at 20% equity cut-off. Pyramid firms are those controlled by ultimate shareholders through control pyramids. Based on the identity of the ultimate shareholders, they can be categorized as Family pyramids, corporate pyramids, and pyramids controlled by Government. Companies that have controlling shareholders but are not owned through pyramidal structure are classified as freestanding family firms.

	Independent	Family Pyramid	Stand-free family	Government	Corporate Pyramid	Foreign controlled	Unknown	Total
1902	45.75%	10.16%	2.90%	0.00%	7.30%	21.15%	12.74%	100.00%
1910	28.84%	39.81%	3.32%	1.56%	0.35%	20.06%	6.05%	100.00%
1920	33.32%	22.58%	5.44%	17.88%	2.21%	14.97%	3.60%	100.00%
1930	28.11%	15.77%	5.17%	24.44%	0.95%	24.72%	0.84%	100.00%
1940	33.04%	10.59%	2.52%	26.49%	1.34%	24.87%	1.16%	100.00%
1950	41.91%	6.84%	4.28%	25.99%	1.91%	18.24%	0.82%	100.00%
1960	41.06%	8.33%	2.07%	21.59%	3.56%	23.12%	0.28%	100.00%
1965	34.94%	8.25%	0.59%	28.72%	3.96%	23.25%	0.29%	100.00%
1969	31.24%	11.14%	2.06%	25.27%	5.05%	25.24%	0.00%	100.00%
1975	29.29%	7.47%	1.99%	31.69%	3.07%	25.71%	0.77%	100.00%
1980	26.02%	10.10%	1.89%	32.95%	2.92%	26.12%	0.00%	100.00%
1985	22.53%	20.98%	2.10%	31.69%	2.78%	19.92%	0.00%	100.00%
1990	26.45%	19.67%	4.51%	26.45%	2.47%	20.45%	0.00%	100.00%
1994	27.62%	19.16%	5.15%	24.50%	1.36%	22.21%	0.00%	100.00%
1998	29.54%	26.29%	8.29%	17.13%	2.79%	15.97%	0.00%	100.00%
2003	34.34%	22.86%	5.84%	22.76%	1.09%	13.11%	0.00%	100.00%

Source: Morck et al., 2004. "Rise and Fall of Widely Held Canadian Firms." In R. Morck ed. *The Evolution of Corporate Ownership and Family Firms*, NBER, forthcoming.

Table 5: Finance Dependence of Family-controlled Pyramids

This table summarizes the regression results on the dependence of family pyramids on external financial development. Firm growth is measured by both growth rate of total assets owned by certain type of firms, and the growth rate of assets per firm for that type. Three measures are used to capture the development of stock market, banking and total financial sector. Dummy variable DEP is used to capture financial dependence. It equals one if a firm belongs to any family-controlled pyramids, zero otherwise.

	Growth of Total Assets Owned by the Type			Growth of Assets Per Firm Owned by the Type		
	Value of shares traded	**Bank Assets**	**Share Value + Bank Assets**	**Value of shares traded**	**Bank Assets**	**Share Value + Bank Assets**
Interaction (Dep. * Stock)	-0.0790			0.0453		
	-0.46			0.45		
Interaction (Dep. * Bank)		-0.0296				
		-0.81				
Interaction (Dep. * Financial)			-0.0264		-0.0074	-0.0031
			-0.78		-0.34	-0.16
Adj. R-square	**0.0694**	**0.0988**	**0.0735**	**0.0539**	**0.1425**	**0.1220**

Table 6: Family Pyramids, Financial Development and Economic Growth

This table reports univariate statistics of the main variables across two sub-samples. Left panel reports statistics of variables over the years when family pyramids have become more important, while the right panel reports statistics of variables over the years when family pyramids have become less importance.

	OWN = 1: Periods in which Family Pyramids become more important (47 out of 102 years)			**OWN = 0: Periods in which Family Pyramids become less important (55 out of 102 years)**		
	Mean	**Median**	**Standard Deviation**	**Mean**	**Median**	**Standard Deviation**
Economic Growth						
Per capita GDP Growth	3.70%	3.10%	0.0383	3.33%	3.38%	0.0829
Total Factor Productivity Growth	2.41%	1.55%	0.0448	3.03%	2.30%	0.0796
Financial Development: Stock Markets						
Value of Shares Traded (TSX) / GDP	10.58%	6.00%	0.1478	15.85%	5.55%	0.2220
Turnover of Shares (TSX)	22.26%	18.65%	0.1671	33.68%	24.77%	0.2554
Financial Development: Banking						
Credit to Private Sector	61.47%	65.60%	0.0991	65.46%	78.00%	0.1662
Bank Assets	68.29%	54.05%	0.3438	71.40%	61.85%	0.2686
Education						
Post-secondary Enrollments / Population	10.61%	11.53%	0.0291	9.31%	12.59%	0.0543
Innovation						
Total R&D Investments / GDP	1.36%	1.35%	0.0027	1.59%	1.70%	0.0034
Openness						
(Imports + Exports) / GDP	41.47%	37.91%	0.1200	44.52%	42.69%	0.1090
Government Efficiency / Corruption						
Debt of Federal Government / GDP	51.43%	53.99%	0.2057	67.94%	63.44%	0.3075
Government Consumption / GDP	21.93%	22.52%	0.0116	21.58%	22.18%	0.0183
Inflation (CPI)	4.09%	3.66%	0.0408	2.76%	1.92%	0.0584

Table 7: Interaction between Family Pyramids, Financial Development and Economic Growth

This table reports multiple regression results on the interaction between the importance of family pyramids, level of financial development and economic growth in Canada. OWN is a dummy variable that equals 1 if the importance of family pyramids has risen for year t, and zero otherwise. Financial development is defined as the ratio of Value of Shares traded on TSX plus Total Bank Assets over GDP. Economic growth is measured in both real per capital GDP growth and total factor productivity growth.

	Per Capita GDP Growth		**Total Factor Productivity Growth**	
	Model (1)	**Model (2)**	**Model (1)**	**Model (2)**
Constant	-0.0067	-0.1528	-0.0366	0.9024
	-0.25	-0.74	-1.04	2.01
Financial Development:				
(Value of Shares Traded + Bank Assets) / GDP	-0.0128	0.0093	-0.0145	0.0021
	-1.55	0.77	-1.43	0.07
OWN	-0.0226	-0.0244	-0.0254	-0.0278
	-0.67	-1.32	-0.59	-0.69
OWN * Financial (value + assets)	0.0029	-0.0024	0.0027	-0.0176
	0.30	-0.23	0.22	-1.19
Education				
Post-secondary Enrollments / Population		0.0645		0.1133
		1.88		1.51
Innovation				
Total R&D Investments / GDP		-0.0739		0.1863
		-1.26		1.81
Openness				
(Imports + Exports) / GDP		-0.0155		-0.105
		-0.35		-1.09
Government Size and Efficiency				
Debt of Federal Government / GDP		-0.0535		-0.0683
		-1.29		-0.75
Inflation (CPI)		-0.568		0.249
		-2.68		0.69
Adj. R-Square	**0.0697**	**0.1841**	**0.0677**	**0.0857**

Appendix 1: Rise and Fall of Individual Family-controlled Pyramid Groups

Name	Time	Rise & Fall	Economics / Political Environment
Cox Group	1880s	George Cox spun the most elaborate financial web in Canada. In mid-1880s, he set up Central Canada S&L and Toronto S&L. At the beginning of 20th century, he owned and ran Canada Life, and was the president of Bank of Commerce. Cox founded National Trust in 1898, and Dominion Securities in 1901.	Development of financial institutions.
	1920s	Cox-Mackenzie empire had gone down in the ruins of Canadian Northern Railway, the on-slaughter of civic populism in Ontario. Cox, Lash and Mackenzie were all dead, none of them leaving heirs of outstanding ability. Mackenzie and Mann did leave much money either, as they spent most of their fortune to keep the railway running.	Failure and nationalization of Canadian Northern Railway. Mackenzie group's international utility empire was crumbling: Mexican ventures were all imperiled after 1910 by successive revolutionary governments.
Mackenzie & Mann Group	1890s	As Canada moved north and west in late 1890s, the inadequacies of the railway network seemed glaring. In 1985 William Mackenzie and Donald Mann formed Lake Manitoba Railway and Canal Company. Mackenzie formed the most important business contact of his career in 1892 when Canadian Bank of Commerce, acting with Cox on his own account, bought $1' million of the bonds of Mackenzie's Toronto Railway Company. All of Cox's other companies, Canada Life, Dominion Securities, and the National Trust, became involved with Mackenzie's adventures. In 1912 Mackenzie bought all the components of (the Canadian octopus) under the control of one holding company, Brazilian Traction Ltd.	Inadequacy of railway network. Soared resources / utilities markets.
	1920	(see Cox group)	
*****		*****	*****
Holt Group (Montreal Light)	1900s	Herbert Holt moved to Montreal in 1880s and became interested in local gas and electricity companies. In 1901, a group led by Holt consolidated Montreal's utilities into	

		Montreal Light, Heat and Power.	
	1929	Canadian business community was hit hard by the market crash. Holt's major holdings, including Canadian Power and Paper company, lost huge amount of money.	Market crash of 1929.
	1944	Montreal Light, Heat and Power was taken over by Quebec government	Government policy.
*****		*****	*****
Max Aitkin Group	1900s	Aitkin left Royal Securities in 1906 and took over Montreal Trust. He then returned by taking over Royal Securities. In 1910 he led a syndicate to create the Steel Company of Canada. He also merged 12 Portland cement-makers into Canada Cement.	
	1910s	Aitkin left Canada and moved to UK.	Aitkin's way of doing business, especially in the Montreal Rolling Mills case, was harshly criticized by the business community.
Killam Group	1910s	I.W. Killam pulled all the bits and pieces of Aitkin's old investments into a healthy utilities group, International Power.	
	1920s	Killam believed that time was right in 1920s to create the largest forest products firm in the world, the Riordon Company Ltd. But the company failed during the market crash. Killam and the management entered years of struggle for survival.	Market crash
	1955	Killam's death. Stocks were offered to employees and general public. The government took huge amount of succession duty.	Death. Succession Duty.
Dunn Group	1900s	James Dunn moved to London from Montreal and soon became a star bond specialist. F.S. Pearson's utilities were central to Dunn's operation. Algoma went to receivership after the Market Crash and in 1935 was taken over by Sir Dunn. Dunn turned himself from creditor into controlling shareholder	Moving to London, the center of international capital markets.
	1956	Dunn passed away, a few months after Killam's death. C.D. Howe decided that Algoma should not be controlled by any one shareholder, and sold Dunn's shares in several small blocks.	Death. Government's policy.

		Government took huge amount of succession duties out of Dunn group and Killam group.	Succession Duty.
*****		*****	*****
Eaton Group	1860s	Timothy Eaton opened T. Eaton and Company in 1869.	
	1990s	Eaton's had financial trouble for several years. It finally closed some of its stores and sold the rest to Sears Canada.	
*****		*****	*****
Molson Group	1800s	One of the oldest family business groups in Canada. The family got into banking business since 1800s, and brewing business since 1780s.	
Irving Group	1920s / 1930s	One of the oldest family business groups in Canada. In 1920s, K.C. Irving added gas station and car dealership to the family general stores.	
	1960s	Irving family group became the symbol of monopoly capitalism in Maritimes, especially in N.B.	
Weston Group	1920s	Garfield Weston inherited a bakery store from his father. The family business grew bigger over the 1930s	
	1940s / 1950	In 1947 Weston purchased Loblaw grocery operations in Canada and later those in the US in mid 1950s.	
*****		*****	*****
Bronfman Group (Seagram)	1910s / 1920s	Start-up: sold liquor as mail-order distributors. In 1928 Bronfman family became the major partner of a group of British investors in Distillers Corporation – Seagram Ltd. Bronfman family rose to the top of the distiller business.	US Prohibition (liquor)
	1970s	Became the minority shareholder (large) of Du Pont Chemicals.	Merger wave.
	2000s	Seagram was sold to create Vivendi Universal	
Edper Group (Brascan)	1950s / 1960s	Sam Bronfman set up Edper for Edward & Peter Bronfman Sam Bronfman purchased Seagram's shares from Edper at under-the-market prices. Cemp owned 11 million Seagram shares while Edper owned only 2 million. The two Bronfman groups finally split in 1969.	
	1970s –	Edper took over Brascan in 1979. Through a series of takeovers in	Merger wave.

	1990s	1980s and early 1990s, the group controlled firms such as Noranda and MacMillan Bloedel. Edper group moved to the center of Corporate Canada.	
	2000s	Downsizing of the group: reduced its holdings in Brascan to less than 20% (still the largest shareholder).	Downsizing
*****		*****	*****
Power Group	1920s	The original Power Corporation was set up in 1925. It was under control of Nesbitt and Thomson for a couple decades. One of the company's larger holdings was in shares of B.C. Power Corporation, whose operating subsidiary was expropriated by the B.C. government in 1961.	Power operations were nationalized / provincialized
	1960s	Reverse takeover between Power Corporation and Trans-Canada Fund. Power took over Canada Steamship in 1968. In light of the deregulation of financial industries, Desmarais set up Power Financial in 1980s.	Paul Desmarais took over Power Corporation Financial deregulation.
*****		*****	*****
Jodrey Group (Scotia Investment)	1920s	Roy Jodrey was one of the most successful investors in his generation. His largest holdings were in the former Dominion Steel and Coal, and Crown Life.	
	1990s	John Jodrey is the son of Roy Jodrey. Jodrey's public holding company is Scotia Investments. Apart from interests in CKF, Maritime Paper Products, and others, the group also held minority interests in Extendicare, Crown Life and National Sea Products. The group employed multiple voting in these firms.	
*****		*****	*****
Thomson Group	1930s	Roy Thomson started his communication group by setting up a string of newspapers and radio stations.	
	1970s	In 1979 Thomson group won the battle with Weston group over the control of Hudson's Bay, which in turn owned Zellers.	
	1998	Ken Thomson sold his interest in HBC and many newspapers assets	Digital era.

		to create the world's largest digital database.	
*****		*****	*****
Argus Group	1940s	Created by EP Taylor. Through a series of takeovers, it controlled Massey-Ferguson, Dominion Glass, etc.	
	1970s	In 1978 after the death of Bud McDouglad, Argus's control was sold to Ravelston, which in turn was owned by Conrad Black.	Conrad Black took over Argus group
	1980s	The original Argus group was terminated in 1980s. In 1981, Hollinger (Black) was span off from Argus. Also In 1981, Argus Corp. turned over its block of Massey-Ferguson shares to the company's employee pension fund in an effort to obtain aid from either the federal or Ontario government. Conrad Black headed to Britain.	Termination of the original Argus group
*****		*****	*****
Sobey Group	1960s	Frank Sobey built up a chain of movie theatres and supermarkets and ended up with dominant blocks of stock in Dominion Textile, Canadian Salt, and Empire.	
	1990s	The family's grocery, real-estate and investment business was turned over to professional managers at the beginning of 1990s. But the Sobey family owned majority control of the business, including Empire and Sobey Inc.	Professional management.
*****		*****	*****
Reichmann Group	1970s	Reichmann brothers consolidated their various small holdings into O&Y. Reichmann group took over Abitibi-Price in 1970s. The group later took over Gulf Canada and Hiram Walker.	Merger wave.
	1990s	The empire collapsed in 1992 under its $18 billion debt load. The following year, Philip Reichmann and his partner, Frank Hauer (Paul Reichmann's son-in-law) bought O&Y Properties Inc. from its creditors.	Bad investments.
*****		*****	*****
Schwartz Group (Onex)	1970s	In 1977 Schwartz and Izzy Asper received federal charter to set up CanWest Capital Corporation. They since set up a good work team until the break-up in early 1980s.	

	1980	Incorporation of Onex. Schwartz owned majority of the multiple-voting shares, which gave him the rights to appoint 2/3 of the directors.	

Source: Bliss, Michael, 1987. Northern Enterprise. The Canadian Publishers. Morck, Randall, Michael Percy, Gloria Tian, Bernard Yeung. 2004. "The Rise and Fall of the Widely Held Firm: A History of Corporate Ownership in Canada." In R. Morck ed. *The History of Corporate Governance around the World: Family Business Groups to Professional Managers*, National Bureau of Economics Research. Archives for various companies.

Appendix 2: Development of Securities Regulation in Canada

1870s	Emergence of stock exchanges;	Exchanges are self-regulated; No securities law; no corporate law
1870s	**Companies Act**	The Dominion Parliament enacted the Canada Joint Stock Company Letters patent Act in 1869. Its 1877 successor required issuers to disclose their contracts. However, it did not institute detailed prospectus content requirements until 1907 (Ontario Companies Act). Ontario and BC adopted anti-fraud provisions in 1897, followed by the Dominion government in 1902.
1892	Criminal Code	First Canadian Criminal Code came into force in 1892. It had some provisions covering criminal activity in securities regulation.
1912	**Manitoba Sale of Shares Act (blue-sky law)**	Manitoba became the first jurisdiction in Canada to pass a blue-sky law. Alberta and Saskatchewan followed suit. Manitoba Act introduced anti-fraud measures directly into securities law.
1914 - 1920	Trading restrictions imposed on Canadian exchanges	Intervention of financial markets by federal government to control market for war financing.
1917	**Dominion Companies Act**	The Act followed English legislation. It required a prospectus or statement in lieu with a prospectus. The Dominion Companies Act was further amended in 1934 and 1935.
1923	Ontario blue-sky law was passed (not proclaimed into law)	Company promoters were required to file extensive information with the Commissioner of securities.
1928	**Ontario Security Frauds Prevention Act**	Registration of brokers and salesmen to eliminate 'bad eggs.' Illegal conduct (fraud) by brokers and their salesmen were more precisely defined. Government was granted more power to investigate suspected fraudsters.
1929	'Uniform' SFPAs	By 1929 Ontario, PEI and all three prairie provinces had Security Frauds Prevention Acts. NB still had its constitutionally-flawed blue-sky law. And BC's Companies Act had been tightened up to compel broader disclosure. Only NS and QC had not enacted special legislation; like the federal government, they had so far declined to become involved in closer regulation of securities markets. Although SFPA required issuers to register, it did not have comprehensive disclosure requirements, as they were already found in various company acts.

1929 - 1932	Market Crash Leaving the Gold Standard	
1932	Privy Council's decision on Lymburn v. Mayland	Test if SFPAs were valid. The Privy Council's decision awarded jurisdiction for the regulation of securities markets to the provinces.
1934	**New federal Companies Act**	The Canadian Company Act of 1934 did not establish a separate regulatory agency (e.g. SEC), but did rely upon the principle of full disclosure which also underlay American regulation. Act of 1934 did impose somewhat tighter controls over the organization and financing of such undertakings, but regulation of the marketing of securities clearly became primarily a provincial responsibility.
1937	**Creation of OSC**	
1935	Amendments to Companies Act	The changes made the federal Companies Act as strict in its disclosure requirements as any provincial legislation in the country.
1937	Amendments to Securities Act	OSC was granted wider investigatory powers to expose front men and other shay operators.
1945	**Ontario's new Securities Act**	'Full, true and plain disclosure,' this was the first comprehensive securities legislation in Canada. SAS, AB, NB, QC, and BC enacted very similar Securities Acts during 1950s. This achieved a fair amount of uniformity across the country.
1947	Amendments to the Ontario Securities Act	The primary responsibility to discipline its members now rested with the TSE's Managing Committee rather than upon the rules to be administered by the OSC.
1950s	Canadian problem	High-pressure marketing of speculative mining stocks in the US annoyed the US regulators. In 1951 Canada amended its Criminal Code to ban 'mail fraud' into the US. In 1952 a new extradition convention was approved by both countries. The Americans believed that they finally had the necessary tools to proceed against anyone who was fraudulently selling securities from across the boarder.
1960s	Scandals & More challenges	
1964	Royal Commission on Banking and Finance	Commission called for changes of securities regulations. The Royal report concluded that Canada's stock exchanges lacked both the resources and the authority to protect investors properly.
1965	**Kimber Report**	The Kimber report established by Ontario government revealed a growing consensus that wider disclosure about internal corporate affairs was desirable. The report also concluded that insider trading certainly took place. Kimber report effectively launched the modern securities era. It set 'twin' goals for securities regulation: investor protection and efficient capital markets. Kimber committee's most important reform was 'continuous disclosure.' Kimber report

		targeted four major areas: (a) insider trading reporting; (b) takeover bid regulation; (c) annual and interim financial statements; and (d) proxy regulation. The 1966 Securities Act implemented virtually all Kimber recommendations. Federal government and other provincial governments later adopted comparable changes to their legislation.
1966	**New Ontario Securities Act**	Kimber Report led to the 1966 Ontario Securities Act, and ushered in the modern era. The other major securities provinces followed suit. From this point, registration of persons and registration of issuers are both found in securities legislation.
1968	Amendments to the Securities Act	Timely disclosure of material changes in internal corporate affairs was required.
1974	Amendments to Securities Act	During the 1970s the securities industry was bent upon sticking to the highly protectionist strategy of the past decade, despite the plain warning from the OSC that it could not ignore the increasing internationalization of the financial sector. In February 1974 the 25-10 rule on the ownership of securities firms operating in Ontario was made permanent in Securities Act.
1975	Amendments to CBCA	
1978	New Ontario Securities Act	Mergers and takeovers helped to spark the drive for revised Securities Act in the late 1960s, but the first efforts in this direction foundered as a result of complaints about the cost of complying. The new Securities Act permitted the OSC to require follow-up offers to all stockholders on the same terms offered to those possessing control blocks, but the new provisions proved largely unworkable for a long time.
1985		Two types of federal legislation are especially important to the securities system. The CBCA (as amended in 1985) regulates the conduct of federally incorporated companies. Some provisions of the Criminal Code of Canada (CCC) also govern securities regulation – e.g. fraud, misrepresentation, and market manipulation.
1990s	Further amendments to Securities Act & CBCA	Minor changes and improvements
2000	Amendments to CBCA	
2003	Amendments to Criminal Code	Corporate governance
2004 - 2005	CSA's (similar to SOX) measures to restore Canadian market confidence; National instruments	NI 58-101: Disclosure of Corporate Governance Practice; NI 58-201: Corporate Governance Guidelines

Source: Armstrong, Christopher, 1997. Blue Skies and Boiler Rooms: Buying and Selling Securities in Canada, 1870 – 1940. University of Toronto Press. Armstrong, Christopher, 2001. Moose Pastures and Mergers: The Ontario Securities Commission and the Regulation of Share Markets in Canada, 1940 – 1980. University of Toronto Press. Dey Report, 1994. Where were the Directors? TSX. Johnston, David, and Kathleen D. Rockwell, 1998. Canadian Securities Regulation, 2nd edition. The Butterworth. New National Instrument 58-101: Disclosure of Corporate Governance Practices, CSA.

CHAPTER 4

THE ECONOMIC IMPORTANCE OF CORPORATE CONTROL IN CANADA

I. Introduction

Who own Canadian corporations, millions of individual investors or a small group of very rich people? Why are more than one quarter of Canadian corporations organized into control pyramids? What are the characteristics of Canadian control pyramids? Is a pyramidal ownership structure better or a worse than a diffused ownership structure?

In the US and UK, corporate finance and corporate governance problems primarily stem from the conflicts between managers who own few shares (agents) and millions of diffused shareholders (principals). Outside of the US and UK, many firms across different countries have controlling shareholders. Control pyramids are found to prevail in many countries, including Canada (La Parta *et al.* 1999, Morck et al. 2000). At the presence of pyramidal structure, the main corporate governance problem is the conflicts between the controlling shareholders and millions of small shareholders who invest their money in pyramid group firms but have little control over their investments.

This paper studies the phenomenon of control pyramids in the Canadian context. In particular, I investigate the characteristics of Canadian pyramid groups and their performance records.

Using ownership data and financial records from 1994, I analyze the ultimate ownership structure of Canadian corporations. Many Canadian firms, like their US counterparts, are widely held by small investors. However, more than one half of the 1,567 companies sampled do have controlling shareholders, who can be wealthy families, government agencies, or other widely held companies.

I contrast firms controlled by ultimate shareholders through control pyramids with widely held companies. On average, pyramid group firms are larger, more leveraged, and invest less in research and development. They tend to earn lower accounting returns and pay more dividends than widely held firms do. However, the performance measures are not statistically significantly different between pyramid firms and widely held independent companies.

Discrepancies between ownership rights and control rights exist. The apex firm in a controlling pyramid controls all other firms in the pyramid, but has a diminishing real economic interest in the cash flows of firms closer to the bottom of the control pyramid. In addition, different types of control pyramids are organized differently. Family-controlled pyramids are organized vertically, with the largest having 16 control layers. Government-controlled and corporate-controlled pyramids are organized more horizontally. The cash flow to control rights ratio for typical firms in family-controlled pyramids is about 0.55, while this ratio for the other two types of pyramids is close to 1.

Johnson *et al.* (2000) describe a number of "tunneling" cases. Tunneling, or self-dealing as named in Canadian law, involves a business deal between two firms controlled by the same ultimate owner. Typically, tunneling occurs when the parties ultimately controlling the firms in corporate pyramids transfer wealth out of pyramid group firms whose dividends were shared with public shareholders and into firms that paid dividends only to the controlling shareholder.

I investigate the possible tunneling issue by linking firm performance measures to pyramid membership and to a company's position within its pyramid. I find that, after controlling for firm-level characteristics and industry effects, pyramid group firms (especially family-controlled ones) closer to pyramids' bases tend to perform worse than firms closer to the pyramids' apexes.

Corporate groups have been hypothesized to provide a sort of inter-group insurance, with temporarily strong group firms supporting temporarily weak ones (e.g. Morck, Wolfenzon and Yeung, 2005). To investigate this, I study how closely the stock returns of pyramid group firms track return indexes of their industries and return indexes made up of the other companies in the same pyramid. I do not find evidence supporting this argument.

The rest of the paper is organized as follows. Section II introduces the issue of control pyramids in a Canadian context. Section III explains the data collection process and selection criteria. Section IV describes the empirical framework in which I analyze the data, including categorizing Canadian companies into different types and the definition of separation of ownership from Control. Section V summaries the empirical finding. Section VI provides conclusions and discussions.

II. Background

Finance theory and the "theory of the firm" in economics are, for the most part, based on the assumption, commonly attributed to Berle and Means (1932), that large firms are widely held by thousands of diffuse shareholders. For example, this view underlies now classic work by Baumol (1959), Jensen and Meckling (1976), and other scholars. Under this assumption, the goal of financial managers is to act in the best interests of shareholders, or more specifically, to maximize the value of the company's stock. They thus should take actions to maximize the present discounted value of a firm's expected future cash flows.

This assumption of diffuse atomistic shareholders turns out to be generally valid only in the large corporate sectors of the United States and United Kingdom. La Porta *et al.* (1999) investigate the ownership structure of the 20 largest publicly traded firms in 27 developed countries, including Canada. They find that widely dispersed ownership structures to be quite rare in most countries. Belying the characterization of the typical firm in standard finance textbooks around the world, most large firms in most countries have controlling equity block holders. These are typically shares owned by another company, which in turn has yet another company as its controlling shareholder. These chains of corporate control organize the large firms of most countries into great pyramid groups, with control extending downward from a relatively small number of ultimate owners – who may include a few free standing widely held corporations, wealthy families, or state-owned enterprises.

Claessens *et al.* (2000) analyze 2,980 publicly traded firms in 9 East Asian countries and find a significant separation between ownership and control. They argue that control rights often exceed cash-flow rights because of control pyramids and cross-holdings. They report an average ratio of cash flow rights to control rights (O/C Ratio) of 0.746, with the separation being most severe in family controlled pyramids. Widely held firms account for only 43% of their total sample, while a few wealthy families control 38% of the companies investigated.

Another study by Faccio and Lang (1999) uses a sample of 3,740 publicly traded firms in 5 Western European countries. They also document extensive separation of ownership from control because of pyramidal ownership structures and find a higher ratio (44%) of family control than is reported in the Asian study. Within family pyramids, the ratio of ownership rights to control rights is even more extreme – averaging 0.877.

Khanna *et al.* (2000, 2001) investigate the business groups in emerging markets. They propose that, in developing countries like Chile and India, family controlled business groups have a survival advantage over freestanding widely held firms because group firms can deal with each other, avoiding transactions in corrupt or otherwise flawed open markets. In many cases, these business groups are organized in control pyramids. Why do pyramid group firms do well in poor countries? According to Morck and Yeung (2004), pyramid firms do well because they are better rent seekers than widely held independent firms.

Control pyramids are presently very rare in only the United States and United Kingdom. Japanese firms are organized into dense networks of inter-corporate equity block ownership, sometimes structures as pyramids, but often with no identifiable pyramidal apex. Elsewhere, control pyramids are quite common. Canada is, in this respect, a typical country.

This paper is fundamentally motivated by this major, but often completely overlooked difference between the ownership and control of large firms in Canada and the United States.

Most big US companies are widely held by a multitude of small shareholders. So-called "big investors" such as pension funds sometimes own as much as 3% or 4% of a firm's stock (e.g. Marco Becht 2001, and Demsetz and Lehn 1985)[85]. Top corporate managers frequently own only a fraction of a percent of their firm's stock, though in some cases top management does own a substantial equity block. However, this is only very rarely above 20% in large firms.

Discussions of corporate governance in the US focus on the proposition that managers maximize their own utility rather than profits (or more properly, the expected present value of all future economic profits). Morck *et al.* (1988) present evidence that this happens in large US firms in two basic ways:

1. Managers use a firm's resources to buy things they like. These *other people's money* problems are worst in firms in which the top managers own little or no stock - a common situation in the US.

2. Managers become "entrenched" in that, when they grow incompetent, or when their talents are no longer is needed in a CEO under new

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[85] Anderson and Reeb (2003) argue that one third of S&P500 firms have controlling shareholders. They define a firm to be family controlled "when founding families hold shares in the firm or when founding family members are present on the board of directors."

conditions (e.g. technology, trade relations), they cannot be removed because the cost of doing so is greater than the benefit for each individual shareholder. *Entrenchment* problems are worst in firms in which the manager owns a controlling block of stock.

A large and growing literature, reviewed by Shleifer and Vishny (1997), confirms the robustness of this basic result for the US.

The good news here is that high managerial ownership makes "other people's money" problems less severe. Likewise, low managerial ownership reduces "entrenchment" problems because when managers own little or no stock, they are vulnerable to shareholder pressure at annual meetings, during proxy disputes, and even during takeover threats. Morck *et al.* (1988) show that US firms usually have one problem or the other, but not both.

In the US, concern over corporate governance problems has led to all sorts of mechanisms to focus managers on the right objective function (stock options, bonus schemes, liability to lawsuits from shareholders, boards of directors oversight, etc.) and to facilitate the ejection of non-performing managers (proxy challenges, takeovers, LBOs, etc.) All these things are aspects of "corporate governance".

Unfortunately, most discussion of corporate governance issues in Canada proceeds as if Canadian firms were organized like their US counterparts.

In Canada, the situation is in fact hugely more complicated. A large fraction of big Canadian firms are organized into control pyramids, where a dominant shareholder owns a firm that owns e.g. 51% of a number of other firms, which then each own e.g. 51% of another set of firms, and so on, with small public shareholders owning the other 49% of each firm. The longest such chains in Canada, using 1994 data, have 16 levels and contain more than 500 firms. The controlling shareholder is most often a wealthy family, but can also be a widely held corporate entity such as Bell Canada, or a government agency such as the Caisse de Dépôt et Placements du Québec. For simplicity, I will refer to the controlling shareholder in a control pyramid as the 'apex shareholder' of the pyramid.

Owners with stakes below 51% can lock in control in Canadian pyramids because Canadian exchanges do not discourage the use of super-voting shares. These are separate classes of shares with more than one vote per share, and are usually given designations such as "class B shares". Super-voting shares enable apex shareholders to retain majority-voting control while owning stakes in pyramid group firms that, in some cases, are quite small. One other means, also discussed in the above studies, through which controlling shareholders enhance their control rights, is referred to as equity cross-holdings. These occur when a firm in a pyramid group owns voting equity in another firm in the same layer, or in a higher layer. Super-voting shares and equity cross-holdings often exist within Canadian control pyramids. Later into this paper, I show a typical example of family-controlled pyramid in which cross-holding is part of the pyramidal structure.

Many private firms are scattered throughout Canadian pyramid groups, further complicating the matter. These firms, which actually constitute the majority of the firms in some pyramids, are sometimes fully owned by the apex shareholder and also own shares in various publicly traded pyramid group firms. These shares, when combined with those of other firms controlled by the apex shareholder, constitute a majority of the votes in each public firm in the pyramid. These private firms can be mere shell companies, but they can also be corporations with thousands of workers and huge stocks of property, plant, and equipment. These private firms, along with the apex firm, pay dividends only to the controlling shareholder (except where they are privately held joint ventures with parties outside the pyramid). They are thus logical destinations for income shifted away from public corporations.

In the United States, the situation is quite different. Control pyramids are almost unknown. Domestic subsidiaries are virtually always either 100% owned by the parent or unlisted joint ventures with other firms. Subsidiaries with public shareholders are virtually unknown, except in temporary, exceptional circumstances. US firms also generally have only one class of common stock.

In Canada, the apex shareholder is the controlling shareholder in every single pyramid group firm, and is thus "entrenched" in all of them. But, unlike in the US, "other people's money" problems can exist concurrently with “entrenchment” problems in Canada. For example, firms 16 pyramid layers below the apex are actually at least $1 - 0.51^{16}$ (or virtually 100%) financed with other people's money. The apex shareholder has little stake in whether this firm is run efficiently, and might prefer that it not be so run if this provides non-pecuniary benefits to the apex shareholder. Thus, many large Canadian firms probably have both entrenchment and other people's money problems simultaneously, rather than one or the other.

In short, there are highly credible reasons for suspecting that some Canadian firms have much more severe corporate governance problems than their US counterparts and that this stems from the Canadian firms' pyramidal ownership structures.

Figure 1 illustrates the difference in ownership structure between an archetypical US firm and an archetypical Canadian firm.

A. The Ownership Structure of a large US Firm.

B. The Ownership Structure of EDPER Group.

[Figure 1 goes here]

Intriguingly, La Porta *et al.* (1999) show that the incidence of control pyramids is lower in countries with better shareholder protection. This raises two possibilities.

First, these structures might benefit corporate insiders at the expense of public investors. Johnson *et al.* (2000) describe a number of cases where the parties ultimately controlling the firms in corporate pyramids appear to have transferred wealth out of pyramid group firms whose dividends were shared with public shareholders and into firms that paid dividends only to the controlling shareholder. They refer to these incidents as "tunneling". Canadian law calls them "self-dealing".

The literature shows that multinational firms routinely use "tunneling" to transfer wealth between subsidiaries in different countries to avoid paying high taxes. See e.g. Harris *et al.* (1991). Since corporate pyramids have structures that are similar in many ways, wherein one firm has numerous controlled subsidiary corporations (in the home country instead of abroad), it is plausible that similar "income shifting" might occur in control pyramids. This could be done by removing profits from highly taxed subsidiaries or from subsidiaries whose profits must be shared with public investors. At present, the importance of such transfers between controlled corporations in Canada is not yet fully understood.

Second, large corporate pyramids might short-circuit the normal checks and balances that promote good corporate governance in general.

A large and growing body of literature in corporate finance, beginning with Morck *et al.* (1988, 1989), shows a strong empirical relationship between who owns companies and how well companies are run. Morck *et al.* (2000) utilize Canadian firm-level data to examine the ultimate ownership of 246 large public Canadian firms, and the relationship between ultimate ownership and economic growth. They find that control pyramids are quite common in Canada, and that only a few (53 out of 246) large firms are widely held. A huge amount of resources are controlled by wealthy families, and the divergence of ownership from control mainly comes from pyramidal structure. They also find that firm performance depends on the identity of the controlling shareholder. Specifically, they find a strong linkage between heir-control and poor performance.

The question of whether concentrated ownership, such as pyramidal structure, creates value or destroys value is one of the core issues in corporate finance. Yet, there has been no consensus. On one hand, pyramid groups may utilize "internal capital market" to lower cost of capital and to reallocate resources among its member firms to the group's immunity during economic down turns. On the other hand, the ultimate shareholders have both the incentive and the ability to divert resources out of group member firms (private benefits of control) for their own benefits, which increases agency problems.

The purpose of this study is to work towards filling in these gaps in our knowledge. The specific questions I explore are the following:

1. Who controls Canadian corporations?
2. What are the characteristics of Canadian control pyramids?
3. What is the economic impact of pyramidal structure on firm performance, such as valuation?
4. Is pyramidal ownership associated with tunneling?

III. Data Construction

3.1 Data Sources

My empirical analysis focuses on the year 1994. I use 1994 because data for a subsequent decade are available with which to study possible consequences of different corporate ownership structures.

I extract firm-level financial data from the *Report on Business (ROB) Corporate Database*, which is maintained by Globe Information Services. *ROB* covers more than 1,800 publicly traded firms from five Canadian stock exchanges – Toronto, Montreal, Vancouver, Alberta, and Winnipeg, as well as 700 private firms, 70 crown companies, and 50 co-op corporations. Some of data entries for private and crown companies are missing. I use annual reports to correct some typos and other omissions in *ROB*.

My ownership data come from two sources. The first source is Statistics Canada's *Inter-Corporate Ownership (ICO)*. This ownership data is based on voting equity information from non-confidential returns filed by Canadian corporations under Corporations and Labor Unions Returns Act (CALURA). The IOC data contain errors, so I crosscheck this with ownership information from a broad range of national and international data sources, including Moody's *Who Owns Whom*.

The ICO distinguishes two types of control. The first type is *direct control*, which is defined as an ultimate owner holding more than 50% of the voting equity of a corporation, directly or indirectly. The second type is *effective control*. It implies control of the corporation by means other than the ownership of majority voting equity, such as majority board representation or a sales arrangement. I include both types of control in my sample.

My second ownership source is *Financial Post Historical Reports*. I require a second source because, in many cases, the ICO data does not include the identity of the controlling owner[86]. I find this to be especially true for companies controlled by a free-standing ultimate shareholder. For example, Magna International is defined by ICO as an independent widely held firm. However, the company's founding chairman, Mr. Stronach, controls about 70% of voting interests through a trust. I thus reclassify Magna International as a freestanding company controlled by an individual.

I follow the methodology used by La Porta *et al.* (1999), Claessens *et al.* (2000), and Morck *et al.* (2000) in determining ultimate ownership. I look at all shareholders who control at least 5% of voting rights in order to analyze both ownership rights and control rights. Following La Porta *et al.* (1999), I use 20% voting equity, which represents 'significant influence', as the cut-off in defining a controlling shareholder.

3.2 Canadian Pyramid groups

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[86] This version (July 2005) of the paper is substantially revised due to the inaccuracy of ICO database. I would like to thank Michael King at Bank of Canada for helping me figure out how serious this problem is.

The ICO data identify most inter-corporate equity holdings in all business groups, including control pyramids, in Canada. ICO shows the portion of voting rights of a corporation owned or held by another corporate body or group of related individuals. All holdings of a group are shown in one location in a tiered format – each successive layer of owned corporations is indented further. Groups are sorted by total number of firms in control.

My empirical work depends crucially on the definition of a *control pyramid*. Not all business groups included in the ICO data are control pyramids. I require that a control pyramid to have an apex firm and at least two publicly traded companies. If the apex entity is a wealthy family (including individuals) or a government agency, one of the public companies must be controlled by the apex firm through the other public company. If this condition is met I call both public traded companies *pyramid group companies*, and the apex firm the *ultimate owner* of this control pyramid. But if, the apex firm itself is publicly traded, like, for instance, Canadian Pacific Limited (CP), the apex firm itself is defined as widely held without controlling shareholder while all the companies controlled by CP are corporate-controlled pyramid group firms, with CP as the ultimate owner. If a business group contains only one publicly traded company, with all others private, I define this public company as a freestanding company controlled by an ultimate owner.

I consider three categories of control pyramids, depending on the type of ultimate owner. The first category is family-controlled pyramids, whose apex firms are unlisted entities controlled by wealthy families or individuals. The second category is government-controlled pyramids, whose apex firms are state-owned enterprises. The third category is corporate-controlled pyramids, whose apex firms are widely held corporations. The third type can be further divided into two sub-categories: pyramids controlled by financial institutions and pyramids controlled by non-financial corporations.

Different mechanisms, including stock pyramids, cross-ownership, and dual-class shares, can be used in order to achieve the separation of control rights from ownership rights, as argued by Bebchuk, Kraakman, and Trianits (2000). However, in Canada the latter two mechanisms are usually utilized within the stock pyramids.

My initial full sample includes 2,144 companies with annual financial data in 1994. I divide the full sample according to whether or not a company has an ultimate owner, and if yes, according to the identity of the ultimate owner. My full sample contains widely held corporations, pyramid group companies, freestanding firms controlled by wealthy families and individuals, firms controlled by foreign investors, and firms without reliable ownership data. **Table 1 Panel A** summarizes the incidence of firms in each category.

Slightly more than 10 percent of the full sample firms (226) have no reliable ownership information from either ownership sources. Foreign investors control 351 companies[87]. Excluding all these companies reduces my sample to 1,567 firms. About one half of my sample firms (740) do not have a controlling shareholder who owns at least 20% of voting equity. Approximately a quarter of these firms (387) qualify as pyramid group firms. If I further categorize these 387 pyramid group firms based on the identity of their ultimate owners, 154 firms are controlled by wealthy individuals or families, 168 by other corporations or institutional investors, and 65 by federal, provincial, or municipal governments[88]. 440 firms have controlling shareholders with at least 20% of voting equity, but the control does not involve a pyramidal structure. The statistical analysis in the subsequent sections is primarily about firms without ultimate shareholders, and firms that are controlled by ultimate shareholders through pyramidal structure.

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[87] At the 10% voting equity cut-off, there are 372 firms controlled by foreign owners; at 20% cut-off, 351 firms are controlled by foreigners.

Table 1 Panel B reports the incidence of single-class stocks, dual-class stocks, trust units (including partnership units) and non-traded firms for each category. Dual-class stock is one way to separate control rights from cash-flow commitment. A typical dual-class company offers one class of common stock with superior voting rights and one class of common stock with inferior (or, no) voting rights. The superior voting class of shares is typically held in greater proportion by controlling shareholders, such as founding families. Some of the biggest names in corporate Canada have dual-class structures, including Onex Corp., Power Corporation of Canada, Bombardier Inc. and Magna International Inc.

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[88] Another study by Attig *et al.* (2004) also looks into the issue of corporate ownership structure using Canadian firm-level data. Their research relies on similar ownership sources, but the focus is on publicly traded Canadian firms only. Their paper documents that, defining control as a voting stake of at least 20%, approximately 35% percent of their sample firms are controlled by pyramid groups.

There are 130 firms employing dual-class ownership, with 40 of them belonging to pyramid groups. The separation of ownership from control is further enhanced by dual-class stocks as the controlling shareholder holds the superior class stocks (multiple voting class in the case of multiple vs. subordinate voting, or voting class in the case of voting vs. non-voting) and leaves the inferior class to ordinary public shareholders.

[Table 1 goes here]

What were the largest business groups in Canada in 1994?

Family-controlled Pyramids:

- Edward & Peter Bronfman Group (568 firms)
- The Irving Group (158 firms)
- K. R. Thomson Group (134 firms)
- Weston Group (124 firms)

Corporate-controlled Pyramids:

- Canadian Pacific Limited (171 firms)
- BCE Inc (148 firms)
- Royal Bank of Canada (119 firms)

Government-controlled Pyramids:

- The Government of Quebec (262 firms)
- The Government of Canada (202 firms)

The next three diagrams show typical ownership structures for each of the three types of control pyramids. Diagram 1 is part of George Weston Group, which is the fourth largest family-controlled pyramid in Canada and contains 124 firms. Diagram 2 is a branch of the Canadian Pacific group, the largest corporate-controlled pyramid. It consists of 171 firms. Diagram 3 is a small part of for the corporate group controlled by the Government of Quebec. It is the biggest government-controlled pyramid and includes 262 firms. The main investment arm for Quebec government is the Caisse de Dépôt et Placement du Québec.

[The picture of three pyramid groups goes here]

IV. Empirical Framework

4.1 Multiple Regressions

My main objectives are to compare the performance of firms in control pyramids with that of widely held companies; and to relate a pyramid group firm's performance to its position within its pyramid so as to detect "tunneling".

I employ a multiple regression framework

$$\begin{aligned} Y_i &= F[(X_i) + Pyramid_i] + \varepsilon_i \\ Y_i &= F[(X_i) + Position] + \upsilon_i \end{aligned} \qquad (1.6)$$

where *Y* is a measure of firm performance and *X* is a vector of financial variables that control for key firm-specific characteristics and industry-level effects. The variable "Pyramid" captures whether or a firm is controlled by its ultimate shareholder through pyramidal structure, and the variable "Position" captures, for pyramid group firms, the relationship between a firm and its ultimate shareholder. Both variables will be defined below.

A significant negative coefficient on "Pyramid" means that pyramidal ownership structure is associated with poor firm performance after adjusting for the control variables. Similarly, a significant negative coefficient on "Position" means poor performance for firms in lower tiers of pyramids, and is consistent with tunneling.

To perform these tests, I require indicators for whether or not each firm belongs to a pyramid group. I also require measures of each pyramid group firm's position in its pyramid. Finally, I require firm performance measures and control variables.

4.2 Pyramid Membership & Position within Pyramids

Membership in a Control Pyramid

I define a firm as a member of a specific pyramid group if the apex shareholder of that group controls the firm either directly or through a chain of pyramid group companies. I determine this by consulting my two ownership sources. In some instances, ICO assigns "effective control" even when the apex shareholder's apparent control stake is not very large. I accept such a designation and assign control to the apex shareholder in these cases.

I use a dummy variable to indicate pyramid membership. The dummy variable equals one when the firm is in a pyramid group, and zero otherwise. Another categorical variable, Apex, defined as

P, if the ultimate controlling shareholder is a family;

Apex = S, if the ultimate controlling shareholder is a government or government agency;

C, if the ultimate controlling shareholder is a widely held corporation;

subdivides pyramid group firms according to the identity of their ultimate controlling shareholders.

The Position of a Firm within a Control Pyramid – The discrepancy between ownership and control

It is important to define precisely the place of each firm within its pyramid. This is because, as Berle and Means (1932) note, the "other people's money" problem alluded to above is worse in lower tier pyramid group firms, whose ultimate controlling shareholders' actual ownership (cash flow rights) is smaller. If the firm's manager owns 100% of the stock, she pays for 100% of any venture the firm finances. In this case, efficient management of the firm and maximization of the utility of the controlling owner coincide, and there is no "other people's money" problem. In contrast, if the controlling owner owns only 1% of the firm's cash flows, she pays only 1% of the cost of any venture the firm undertakes. If that venture provides her with substantial personal utility, she may undertake it even though it provides a negative return to the other shareholders. This is the essence of the "other people's money" problem in corporate governance.

In a stylized control pyramid, the apex firm is 100% owned by the controlling family, state-owned enterprise, or a public corporation. Firms in the first layer below the apex of an idealized pyramid might be 51% owned by the apex shareholder. Those in the second layer might be $25.5\% = 0.51^2$ owned, and those in the nth layer might be 0.51^n owned by the apex shareholder.

The layer of the pyramid in which the firm is located is thus a rough measure of the separation of ownership and control. I therefore define LEV as the natural logarithm of the number of tier of the pyramid between the firm in question and the apex firm. Firms nearer the apex have lower values of LEV, and LEV is zero for the apex firm itself.

Canadian pyramids are complicated by the widespread use of super-voting shares, equity cross-holdings, and the existence of numerous other private firms in addition to the apex firm that contribute to the apex shareholder's control over public firms in the pyramid. I therefore require a more precise measure of "proximity" to the apex shareholder, that is, of the true separation of ownership from control for each firm.

First, for each firm, I define *ownership* as the fraction of the firm's cash flow to which the apex shareholder is entitled. This is the sum of any direct ownership by the apex shareholder herself, by firms fully owned by the apex shareholder, and through firms controlled by the apex shareholder via the control pyramid. The last is the product of the fractional equity stakes that connect the firm to the apex shareholder of the pyramid. If several chains of inter-corporate equity holdings connect the firm to the apex shareholder, these are combined.

Second, for each firm, I define *control* as the fraction of votes the ultimate controlling shareholder casts in the firm's shareholders meeting. This is the sum of apex shareholder's direct voting rights and indirect voting rights in the firm, which is defined as the minimum votes along the combination of all control chains.

For each firm, I calculate the ratio of ownership to control rights, RATIO (or, O/C Ratio),

$$^{O}\!/_{C}\ Ratio = \frac{ownership}{control},$$

which measures the controlling shareholder's cash flow rights in the firm in question relative to her voting rights in the firm's shareholders meeting. I interpret this ratio as a measure of the separation of ownership from control in that firm. Firms nearer the pyramid's apex have a ratio closer to one; firms nearer the pyramids base have a ratio closer to zero.

To calculate the O/C Ratio, I construct an equity ownership matrix for each of the control pyramids in my sample. These matrices contain one row and one column for every firm in the pyramid. The ij^{th} element of the matrix is firm i's equity stake in firm j, where i indexes rows and j indexes columns. I use the following example Equity Ownership Matrix from the Edper Bronfman Group to illustrate the calculation. A simplified version of Edper Group's ownership structure can be found in Figure 1.

EQUITY OWNERSHIP MATRIX: Edper Group

RES #	01E001	02E008	05E011	280905	07E150	39072K	09E153	10E156	10E154	895903	07E538	06E454
		0.0 A	100	50.1	49.9 A	95.6	100	100	100	45.8 A	100	47 A
01E001	100.00	**0.00**										
02E008		100.00	**50.10**									**47.00**
05E011			100.00	**50.10**								
280905				100.00	**49.90**							
07E150					100.00	**49.30**						
39072K						100.00	**100.00**					
09E153							100.00	**25.00**	**75.00**			
10E156								100.00		**45.80**		
10E154									100.00		**51.00**	
895903									**25.00**	100.00		
07E538						**46.30**					100.00	
06E454			**49.90**								**49.00**	100.00

Example1: Brascan Holdings, RES# = 05E011

*Ownership Rights: 50.1% + 47% * 49.9% = 73.55%;*

Voting rights: 50.1% + min (51%, 49.9%) = 100%;

O/C Ratio: 73.55 / 100 = 0.736.

Example2: Trilon Financial, RES# = 895903

*Ownership Rights: 73.55%*0.501*(0.499*0.493*0.25*0.458 + 0.75*0.458) = 13.70%;*

Voting rights: (25% + 50.1%) 0.458 = 34.4%;*

O/C Ratio: 13.70 / 34.4 = 0.398.

This approach is used to measure the separation of ownership from control outside the US. Daniels, Morck and Stangeland (1995) and Morck *et al.* (2000) utilize it in studying Canadian firms, Claessens *et al.* (2000) use it in studying East Asian firms, Faccio and Lang (1999) employ it in studying continental European firms, and La Porta *et al.* (1999) and Bertrand *et al.* (2002) apply it in cross country comparisons.

Table 1 Panel C reports simple descriptive statistics for widely held firms, pyramid group firms, and firms in each sub-category of control pyramids. As reported, family-controlled pyramids tend to have a larger separation of ownership rights from control rights, with their O/C Ratios averaging 0.55, than do government-controlled pyramids and pyramids controlled by widely held corporations. There is, in fact, very little separation in the latter two types of pyramid groups. These two types of pyramids are organized more horizontally than vertically.

[Table 1 Panel C goes here]

4.3 Dependent Variables: Firm Performance Measures

4.3.1 Accounting Profitability

My first set of dependent variables deals with accounting profitability. I use return on assets (ROA) and return on book equity (ROE) as my basic measures. Return on revenue (ROR) is also used as a robustness check for ROA. Instead of net income, earnings before interest, depreciation and amortization (EBITDA) is used in the numerator for ROA and ROR. EBITDA is preferred because it adjusts for financing costs and non-cash expenses. For each firm, I construct these measures as follows:

$$ROA = \frac{Income + Depreciation + Interest}{Average\ Total\ Assets}$$

$$ROE = \frac{Net\ Income}{Average\ (Total\ Assets\ -\ Total\ Liabilities)}$$

A firm's ROA is usually thought to assess its effectiveness at using its assets to generate profits, whereas ROE represents the accounting return on shareholders' investments. These widely used accounting ratios are regarded by economists as sometimes unsatisfactory, in that they reflect accountants' perception of profits, rather than that of economists. In the current setting, however, they are useful because they should be affected by income shifting due to *tunneling*, which moves profits from one part of the pyramid to another. Harris *et al.* (1991) show that measures such as these can be used successfully to detect income shifting in multinationals. I utilize them here in investigating possible underperformance of pyramid group firms relative to widely held independent firms, and also possible wealth transfer within Canadian pyramids.

4.3.2 Economic Value Added

Economic Value Added, or EVA, is an accounting approximation to a company's economic profits. It equals to the company's cash flow minus its annualized capital cost. Essentially, economic value added measures how much more valuable a company has become over a year, taking into account the "risk" factors associated with capital. In order to compute EVA, I need cash flows, costs of capital, and dollar amounts of capital employed by the company.

Cost of capital itself consists of two parts – cost of equity and cost of debt. I approximate cost of debt as the ratio of total interest payments over the firm's total liabilities[89]. I follow Capital Asset Pricing Model in determining cost of equity.

The procedure for calculating the cost of equity is as follows. The risk-free rate, which is estimated using 1993 Government of Canada 10-year Benchmark Bond Yield, is extracted from the Bank of Canada. According to Booth (2001), over the period from 1926 to 2000, the realized annual equity premium on Toronto Stock Exchange is approximately 5%. Individual company's beta coefficients are extracted from *DataStream*. Because not all *ROB* firms have valid stock market records in *DataStream*, I estimate betas for companies without raw beta from *DataStream*. I do this in two steps.

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[89] Ideally, I should use the ratio of total interest payments over all interest-bearing debt, both short-term and long-term. Unfortunately, ROB database does not have a separate variable for interest-bearing short-term liabilities. A similarly constructed variable, total interests divided by long-term liabilities, is used for robustness check. The results are qualitatively the same.

Suppose companies *i* and *j* are in the same industry. Company *j* has beta in *DataStream*, while company *i* does not. I first unlever the beta for company *j* by multiplying its original beta by its equity-to-asset ratio. Industry average unlevered beta is the simple average of unlevered betas across all firms in the same industry as *j* is. I assume that company *i* has a business risk that equals industry average. The second step is thus to relever the industry average unlevered beta to reflect the leverage of company *i*, whose beta is not available from *DataStream*. Thus, if a company (e.g. *j*) already has a beta, I use its reported beta coefficient; if a company (e.g. *i*) does not have a beta, its estimated beta equals to the industry average unlevered beta times its asset-over-equity ratio. I do this computation for each and every sample company across all 16 industry groups (the construction of industry groups is discussed in section 4.9).

$$\beta_{Unlevered,j} = \beta_i * \left(\frac{Common\ Equity}{Total\ Asset}\right)_j$$

$$\beta_{Unlevered} = \frac{1}{n}\sum_{j=1} \beta_{Unlevered,j}$$

$$\beta_i = \beta_{Unlevered} * \left(\frac{Total\ Asset}{Common\ Equity}\right)_i$$

$$\mathrm{Re} = Rf + \beta * (Rm - Rf)$$

$$Rd = \frac{Total\ Interest\ Expenses}{Total\ Liability}$$

$$WACC = \mathrm{Re} * \frac{Total\ Equity}{Equity + Liability} + Rd * \frac{Total\ Liability}{Equity + Liability} * \left(1 - \frac{Tax}{Net\ Income}\right)$$

$$EVA = Cash\ Flow - Cost\ of\ Capital\ (WACC) * Capital$$

After-tax cash flows equal net income plus interest payments and depreciations and amortizations. I use the sum of total book equity and total liabilities as the firm's capital investments.

4.3.3 Average Q Ratio and Market to Book Equity

My third set of performance measures includes a modified version of average Tobin's Q ratio, market-to-revenue ratio and market-to-book common equity ratios. The average Q is the value of capital relative to its replacement cost. Q reflects the financial claimants' expectations about the future value of the cash flow the expect to accrue on the firm's total assets. Q has been used extensively in the literature on performance and ownership, and elsewhere – such as that on cross listing. The average Q approximation used in this paper is

$$AVQ = \frac{MV\ of\ Common\ Stocks + (BV\ of\ Assets\ -\ BV\ of\ Common\ Stocks)}{BV\ of\ Assets}$$

where the market value of common stock equals the middle year-end stock price multiplied by number of shares outstanding.

This average Q ratio has been used in previous research to analyze the relationship between ownership and performance. However, this modified Q proposes a serious problem. For pyramid firms, especially the ones in upper-tiers, part of the assets are shares in lower-tier firms in the same group. Typically, these shares are carried at book value instead of marking to market over time. This introduces an upward bias for upper-tier pyramid group firms, which in turn introduce artificially high average Q ratios for pyramid group firms against widely held independent firms. A precise correction of this problem calls for adjusting each and every issue of equity an upper-tier pyramid firm purchased from lower-tier pyramid firm(s), which is empirically very hard. I thus introduce a second variable, Market-to-revenue (MR) that is defined as:

$$MR = \frac{MV\ of\ Common\ Stocks + (BV\ of\ Assets - BV\ of\ Common\ Stocks)}{(Sales + Total\ Dividends)}$$

This ratio is not subject to the bias discussed above. Besides, it can be used to distinguish whether a pyramid firm is a real operating company (with relatively high sales) or merely a holding shell with most of its revenue coming from dividends from lower-tier group members.

I also use market to book equity ratios (MTBV) to measure how the market values a firm's common shares[90]. Again, the market value is calculated as the midpoint year-end price of common equity times the year-end shares outstanding.

$$MTBV = \frac{(Average\ Year\text{-}end\ \mathrm{Pr}ice) \times Common\ Stocks\ Outs\mathrm{tan}ding}{Book\ Value\ of\ Common\ Stocks}$$

4.4 Firm-level Characteristics and Industry Effects

The key firm-level control variables are Size, Leverage, Age, R&D, Risk and Growth Rate. Size is defined as logarithm of total assets; Leverage is defined as the ratio of long-term debt to total assets; Age is calculated as accumulative depreciation over total fixed assets[91]; R&D is defined as Research & Development expenditures divided by total assets[92]; Risk is defined as the sum of squared standard errors of a market model using both the Canadian and US market returns (taking into account of $US/$C exchange rates); and Growth Rate is the firm's average growth rate of profits over the past five years.

---

[90] Claessens et al (1999) and Faccio & Lang (1999) use industry-adjusted excess market capitalization to test for such expropriation. In my statistical analyses I first compare raw mean and median variable values across different types of companies, and then control for industry effects using sector dummy variables.

I need to control for industry effects in addition to firm-specific characteristics. I start with 72 industry segment indicators (INDSGN) of *ROB*. According to *ROB*, this system is based on *TSE300* sector classification, with 14 sector groups included in *TSE300* composite index in 1994. I thus consolidate the 72 *ROB* segments into 16 industry groups[93]. These 16 industry groups are summarized in **Appendix 1**. In the statistical analysis that follows, I also include dummy variables for heavily regulated industries – media, utilities and financial. Dummy variable Media equals one for companies operating in broadcasting, cable, entertainment services, printing and telecommunications, and zero otherwise. The dummy variable Utilities equals one for companies operating in gas utilities, electrical utilities and telephone utilities, and zero otherwise. The dummy variable Financial equals one for banks and insurance companies, and zero otherwise.

---

[91] A commonly used measure of Age, the number of years since incorporation, is not appropriate due to the missing values in *ROB database*.

[92] Many companies do not report R&D separately. I set R&D equal to zero in such cases.

[93] There are some discrepancies between *ROB INDSGN* and the *TSE300* composite index. For example, agriculture and fishing are not included in *TSE300* index but *ROB* assigns certain INDSGN codes to companies in these industries. All the companies that I cannot reasonably allocate into *TSE300* sector groups are put into 2 additional industry groups.

Table 2 Panel A summaries the mean and median values of the numerical control variables. Compared to widely held firms without controlling shareholders, pyramid group firms are bigger, use more debt financing, and invest less in research and development. One interesting observation is that pyramid group firms controlled by wealthy families have much higher profit growth (10.76%) over the past five years than widely held firms (6.12%). Firm-specific risk is relatively stable across different types of companies.

Across different types of control pyramids, those owned by governments are the largest, but family-controlled pyramid group firms are the most levered and spend the least on research and development (R&D).

Table 2 Panel B outlines the Pearson correlations among all these firm-level characteristics.

[Table 2 goes here]

4.5 Endogeneity of Ownership and the 2-Stage Heckman Models

A firm's performance often determines its strategy, given its resources and the conditions prevailing in its industry. In particular, a firm that performs poorly in the past may choose to join a business group. The ultimate shareholder of the group may then place the firm at a particular place within her control pyramid. OLS regressions do not correct for this endogeneity, or self-selection, issue. To assess the possibility of reverse causality, I employ Heckman 2-Step

(Heckman, 1979) model. In particular, pyramid group ownership is first determined as an endogenous rather than exogenous variable, and performance measures (e.g. AVQ, ROA, etc.) are analyzed in the second stage, taking into account the endogeneity of ownership.

4.5.1 Heckman's 2-Step Model

I control for the endogeneity of a firm's joining a pyramid group with firm-specific characteristics, since otherwise I might wrongly attribute the performance differential to those firm characteristics that determine whether it ends up in a pyramid. I employ Heckman (1979) model, in which Lambda, the Heckman correction term, is introduced to control for the effect of sample-selection bias induced by the decision to make the firm a member of a pyramid group. This approach has been used in finance literature to investigate a wide range of issues including cross-listing (e.g. Doidge *et al.* 2001).

The *Performance* regression in OLS is:

$$Y_i = \alpha + \beta' X_i + \delta O(Pyramid)_i + \varepsilon_i \tag{1.7}$$

where X_i is a set of exogenous firm-level variables, O_i, a dummy variable that equals one for pyramid group firms and zero otherwise, $\{\alpha, \beta, \delta\}$, a vector of parameters to be estimated, and ε_i, an error term. The estimated parameter δ measures the relationship between becoming a pyramid group member and firm performance, but since the pyramid firm's decision to join might depend on past performance, O_i are ε_i not independent, and δ may be biased. Following

Doidge *et al.* (2001), I assume that the decision about a firm's *Joining* a pyramid is determined as:

$$
\begin{aligned}
&O_i^* = \gamma' Z_i + \eta_i \\
&O_i = 1 \;\; if \;\; O_i^* \geq 0 \\
&O_i = 0 \;\; if \;\; O_i^* < 0
\end{aligned}
\tag{1.8}
$$

where O_i^* is an unobserved latent variable, Z_i is a set of variables that affect the decision, and η_i is an error term.

I estimate equations (1.7) and (1.8) using Heckman (1979) two-step model. Assuming that two error terms, $\{\varepsilon_i, \eta_i\}$, are bivariate normally distributed with means zero, standard deviations σ_ε and σ_η, and correlation ρ, the expected performance measure of a firm that joins a pyramid group and of the firm that does not become:

$$
\begin{aligned}
&E[Y_i \mid O_i = 1] = \alpha + \beta' X_i + \delta + \rho\sigma_\varepsilon \lambda_{1i}(\gamma' Z_i) \\
&E[Y_i \mid O_i = 0] = \alpha + \beta' X_i + \rho\sigma_\varepsilon \lambda_{2i}(\gamma' Z_i)
\end{aligned}
\tag{1.9}
$$

where $\lambda_{1i}(\gamma' Z_i)$ is the "Inverse Mills' Ratio" and is computed as $\phi(\gamma' Z_i) / \psi(\gamma' Z_i)$, and $\lambda_{2i}^{'}(\gamma' Z_i)$ is computed as $-\phi(\gamma' Z_i) / [1 - \psi(\gamma' Z_i)]$.

The first step of the Heckman (1979) procedure is to obtain estimates of γ in equation (1.8) using a Probit model. The exogenous variables include firm-level variables Size, Leverage, Risk and Growth Rate, as well as two industry dummy variables Media and Utilities. These consistent estimates can then be used to compute values for λ_{1i} and λ_{2i}. The second step estimates equation (1.7) using OLS, but with an additional term, Heckman's Lambda (λ_i), computed as $\lambda_{1i}(\gamma' Z_i)L_i + \lambda_{2i}(\gamma' Z_i)(1 - L_i)$, to correct for self-selection. The *corrected Performance* equation now becomes:

$$Y_i = \alpha + \beta' X_i + \delta O_i + \delta_\lambda \lambda_i + \varepsilon_i \tag{1.10}$$

where the new parameter, δ_λ, is related to the correlation between the error terms in equations (1.7) and (1.8).

4.6 Stock Market Responses

Johnson *et al.* (1985) report that executive's sudden deaths on average lead to an increase in share price. This effect is especially strong if the executive (e.g. CEO) is the firm's founder. One may interpret this in that aging founders are especially likely to be entrenched, and that their deaths permit the firm to hire better managers. One may also argue that aging founders are especially unconcerned with shareholder value, and that shareholders expect the new CEO to do better.

Corporate groups have been hypothesized to form an "internal" capital market in which resources may be reallocated among members as a means of inter-group insurance, with temporarily strong group members supporting temporarily weak ones (e.g. Khanna and Palepu 2001, Cestone and Fumagalli 2005). One way to detect this problem is to look at how one pyramid group firm's stock reacts to the news about other companies within the same pyramid, compared to how it reacts to news of other companies within its industry but not necessarily in the same pyramid group. If the first relationship is much stronger than the second, this might be taken as evidence of intra-group co-insurance.

In order to measure a certain stock price's response to other stocks I construct a list of the ticker symbols of all Canadian firms available in *DataStream database* in 1994, including companies listed on the Toronto, Montreal, Vancouver and Alberta Stock Exchanges. I merge this ticker symbol list with a similar ticker symbol list constructed from *ROB*. This yields 1,128 companies, which I call *DS-ROB* companies, and 908 of these had weekly return records in *DataStream* in 1994.

Using these records I construct two return indices for each pyramid group company, one for its industry and the other for the pyramid group it belongs to.

The first set of indices is constructed based on industry classifications. I create both an equal-weighted industry index and a value-weighted industry index for each firm, defined as follows.

$$INDEX1_{j,i,t} = \frac{\sum_{j} wret - wret_{j}}{nr - 1}$$

$$INDEX2_{j,i,t} = \frac{\sum_{j} wrmc - wrmc_{j}}{\sum_{j} wmc - wmc_{j}}$$

nr : *total number of firms in industry i, at time t.*
wret j : *weekly return for company j, at time t*
wmc j : *weekly market capitalization for firm j, at time t*
wrmc j : *weekly return times marketcap for firm j, at time t*

Note that the firm whose return appears on the left hand side of the regression is never used in constructing the industry indexes. This prevents a spurious correlation.

The second set of return indices is constructed in a similar fashion, but is based on pyramid group companies. When we look at pyramid firms' response to their group members, we shall not consider all their group members. The returns of firms higher in a pyramid should depend on the returns of firms lower in the group, because part of the profits received by higher-tier firms is dividends from lower-tier firms. However, lower-tier firms' returns should not depend on those of higher-tier firms.

$$PINDEX1_{j,i,t} = \frac{\sum_{j} wret - wret_{j}}{nr - 1}$$

$$PINDEX2_{j,i,t} = \frac{\sum_{j} wrmc - wrmc_{j}}{\sum_{j} wmc - wmc_{j}}$$

nr : number of equal-tier or lower-tier firms in group i, at time t.
wmc : weekly market capitalization for firm j, at time t.

To examine the impact of pyramid group affiliation on a firm's stock price performance, we use the regression model:

$$\begin{aligned} r_{j,i,t} &= \beta_0 + \beta_1 INDEX_{j,i,t} + \beta_2 PINDEX_{j,g,t} + \mu_{j,i,t} \\ DIFF_i &= \beta_1 - \beta_2 \end{aligned} \qquad (1.11)$$

In a multiple regression framework, the industry return index and group return index are taken as right hand-side variables, with a given pyramid company's weekly stock returns as the dependent variable. I will examine the statistical significance of β_2, which measures the sensitivity of a pyramid firm's stock return to its group members. I also look at the sensitivity difference, *DIFF*, the difference between β_1 and β_2. A t-test is employed to test the statistical significance of this difference. A significantly positive *DIFF* may indicate that pyramid stocks, on average, are more sensitive to industry movements than to group movements. A significantly negative *DIFF* is consistent with the argument that pyramid group firms, on average, are very closely connected, so risk sharing among group members is possible.

V. FINDINGS

5.1 Performance Measures and Pyramid Group Membership

My statistical analyses begin with simple tests on the means and median scores of various firm performance measures between pyramid group firms and widely held firms without controlling shareholders, and between pyramid group firms controlled by wealthy families and widely held firms. **Table 3** summarizes the results of Cochran Means test and of Non-parametric Median Scores test.

The raw performance measures are quite mixed. Compared to widely held firms, companies controlled by pyramid groups present lower ROA, AVQ and MR, but higher ROE, MTBV and EVA. Significant differences exist across different types of pyramid groups. Pyramid group firms controlled by widely held firms and government agencies behave similarly to widely held independent firms. Family-controlled pyramid group firms exhibit lower accounting returns, create more EVA, pay more dividends to shareholders, and tend to be more favorably recognized on the capital markets compared to widely held firms.

[Table 3 goes here]

As mentioned in section 4.1, OLS regression model (1.7) is employed to analyze the economic impact of pyramidal structure (membership) on firm performance. Taking into account industry effect and firm-level controls, the models are specified as:

$$Performance_i = \sum INDS + \beta_1 * SIZE_i + \beta_2 * AGE_i + \beta_3 * LEVERAGE_i + \beta_4 * R\&D_i$$
$$+ \beta_5 * RISK_i + \beta_6 * GROWTH_i + \delta * Pyramid + \varepsilon_i$$

(1.12)

for widely held firms vs. pyramid group firms.

$$Performance_i = \sum INDS + \beta_1 * SIZE_i + \beta_2 * AGE_i + \beta_3 * LEVERAGE_i + \beta_4 * R\&D_i$$
$$+ \beta_5 * RISK_i + \beta_6 * GROWTH_i + \delta * Apex + \varepsilon_i$$

for widely held firms vs. each specific type of pyramid group firms.

OLS Regression results of three different models are summarized in **Table 4.** Model 1 is a stepwise OLS regression; model 2 uses two industry dummy variables – Media and Utilities – to control for heavily regulated sectors; model three is a generalized OLS model that is heteroscedasticity-consistent and takes into account fixed effects for all industries.

For the two accounting returns ROA and ROE, firm size has a significant negative impact whereas financial leverage and research and development investment show significant positive effects. For the four valuation measures EVA, AVQ, MR and MTBV, firm size has a significant positive coefficient, but financial leverage has a marginally significant negative impact.

Pyramid dummy has no power in explaining different accounting returns across pyramid group firms against widely held firms. The regression coefficient of the pyramid group membership dummy is significantly positive for MTBV, and marginally significantly positive for EVA, but significantly negative for MR. This indicates that the accounting profits of pyramid group firms are not much different from those of their stand-alone counterparts, after controlling for firm-specific characteristics and industry fixed effect. Valuation of pyramid group firms, even after controlling for firm-specific characteristics and industry impact, still tend to be higher than those of stand-alone firms.

[Table 4 goes here]

5.2 Impact of Selection Bias

Table 5 compares the OLS regression results and the results from Heckman (1979) models. Panel A shows the comparison between widely held firms and all types of pyramid group firms, and Panel B shows the comparison between widely held firms and only family-controlled pyramid group firms.

The first stage of Heckman (1979) model estimates the probability that a firm joins a pyramid group. An important issue Heckman technique is the choice of instruments in the selection equation and the performance equation. Many researchers suggest that the ideal instruments should be exogenous characteristics that affect selection but are not closely related to the specific firm's valuation (e.g. Greene, 1997). The firm-level variables in the system, such as financial leverage and historical growth rates, are likely to affect its performance. I choose to include the difference between this year's firm size and last year's size as the instrumental variable, IV.

The Probit model shows that firms in the heavily regulated industries, Media and Utilities, are more likely to have controlling shareholders who organize pyramid groups. Surprisingly, firms with high historical profit growth rates are less likely to belong to pyramid groups.

For ROE, Heckman's Lambda is negative and marginally significant. This means that firms that are more likely to belong to pyramid groups tend to yield lower accounting returns on common equity. This is consistent with the sign of Lambda for both AVQ and MTBV, though the latter two Lambdas are not statistically significant. This *(weak)* evidence indicates pyramid group firms, on average, generate lower returns than their stand-lone counterparts and suffer a valuation discount.

[Table 5 goes here]

5.3 Analysis of 'Tunneling'

An OLS regression model similar to (1.7) is then employed to test whether position matters for firms controlled by its ultimate owner through pyramidal structure.

$$Performance_i = \sum INDS + \beta_1 * SIZE_i + \beta_2 * AGE_i + \beta_3 * LEVERAGE_i + \beta_4 * R\&D_i$$
$$+ \beta_5 * RISK_i + \beta_6 * GROWTH_i + \delta * Position + \varepsilon_i$$

(1.13)

The two variables used to measure the position of a firm within its control pyramids, LEV and RATIO, should have opposite signs in cross-sectional regressions. By definition, higher-up pyramid group firms should have smaller LEV but larger RATIO.

There is an important distinction between simple 'other people's money' problem and 'tunneling' problem. Tunneling means that an apex firm receives resources from lower-tier firms in which the controlling shareholder has a smaller equity stake. More straight forward diversion implies that resources from lower-tier firms end up being used disproportionately to generate utility for the controlling shareholder, rather than dividends for public shareholders. In terms of empirical evidence, simple 'other people's money' agency problems should be worse in firms in low tiers and not so bad in firms in high tiers. 'Tunneling' should harm firms in low tiers and lead to above normal resources (and returns) in firms in high tiers.

For both agency problems, firms closer to the pyramid apex should generate higher returns than firms near the bottom of the same pyramid. I should see negative (positive) regression coefficient for position variable LEV (O/C Ratio). Moreover, I would expect that high-tier (low-tier) pyramid firms' to do significantly better (worse) than widely held independent firms, if tunneling hypothesis is true.

Table 6 compares the performance measures of high-tier family pyramid firms to those of low-tier family pyramid firms. High-tier firms are those whose LEV is smaller than median LEV, Log(4); or those whose RATIO is higher than median RATIO, 0.51. Performance of widely held independent firms is also given as a benchmark.

The performance measures of high-tier family pyramid firms are uniformly (except EVA when we use RATIO) higher than those of low-tier family pyramid firms. When median LEV is used to divide the family pyramid sample, high-tier firms have significantly higher returns than low-tier firms. But these numbers are not big enough to prove that high-tier pyramid firms enjoy higher than normal resources (compared to widely held firms). In other words, the findings are consistent with simple 'other people's money' agency problem, but not with 'tunneling'.

I then run OLS regressions to test the relationship between a pyramid firm's performance and its location, taking into account firm-level characteristics and industry effects. I also include a dummy variable, *Family*, which equals zero for family-controlled pyramids. This additional variable captures the impact of family control, over and above any effect due to the separation of ownership from control, on firm performance. As discussed earlier, pyramids controlled by other corporations and by government agencies are organized more horizontally than vertically. There is thus little deviation in cash flow rights from control rights. Regression results are reported in **Table 7**.

First, as predicted, LEV is negatively related to all accounting returns and valuation measures, while RATIO is positively related to all measures except ROE. Though the regression coefficients are not statistically significant, they are weakly suggestive that pyramid group firms closer to the apex enjoy higher returns than firms closer to the bottom. Secondly, this performance difference is more severe for family-controlled pyramids than for other two types of pyramids. But again, the regression coefficients for the product of the family dummy and position are not statistically significant.

As discussed in Section 4.3, ROA and ROE can be used to detect income shifting among multinational companies. The patterns outlined above show that income shifting should not be a concern for Canadian investors who put money into control pyramids. Pyramid group companies in which the ultimate shareholders have smaller ownership interests do not behave significantly worse than pyramid group companies in which the ultimate shareholders have larger equity stakes.

[Table 7 goes here]

One concern about the logarithm transformation of level (LEV) is that it assumes tunneling is continuously and steadily linked to location. In reality this monotonic relationship may not hold. As a robustness check, I also include another two variations, squared value of LEV and squared value of RATIO in their respective regression models. Though these squared transformations are useful if location and income shift follows non-linear pattern, none is statistically significant.

5.4 Stock Market Responses

To investigate possible intra-group risk sharing, I study how closely the stock returns of pyramid groups firms track return indexes of their industries and return indexes made up of the other firms in the same pyramid. The construction of these indexes and the statistical framework are outlined in Section 4.5. The regression coefficient β_2 measures how sensitive a pyramid firm's stock returns is to the movement of its lower-tier group members. The coefficient differential, *DIFF*, represents how much more (less) sensitive a pyramid firm's stock is to its industry movement than to its group news.

Multiple regression analysis is done for each individual pyramid group and for each type of pyramids. Selected results are reported in **Table 8**.

70 pyramid group firms have weekly return data from *DataStream*. In order to construct the pyramid-group return indices I require that each group has at least three firms with valid return records. And for each pyramid firm, only its group members that locate at equal or lower tiers are used in its pyramid-group return index. This leaves me with only 58 firms belonging to 12 pyramid groups.

As indicated in **Table 8**, regression coefficient β_2 , is positive but only marginally significant for family-controlled and corporate-controlled pyramid groups. Also, sensitivity difference, *DIFF* is negative but not significantly different from zero in all cases. Considering the small number of firms within the sample, this single result is surely not good enough for a convincing conclusion.

[Table 8 goes here]

5.5 Firms Controlled by Free-standing Ultimate Shareholders

About one third of my sample firms (440) have ultimate shareholders who own at least 20 percent of the firms' voting equity, but their controlling shareholders do not exercise control through a pyramidal structure. The previous sections have done extensive exercise as to how differently pyramid group firms behave compared to widely held firms. In this section, I will briefly discuss some observations related to freestanding firms with controlling shareholders.

From **Table 2**, freestanding firms with controlling shareholders tend to have average Size, Leverage, Age, Research and Development investment, firm-specific Risk, and somewhat low average profit Growth rate. The mean and median comparisons (not reported) show that, compared to their widely held counterparts, these firms have significantly lower accounting returns but significantly higher mean EVA and MTBV (median score differences not significant). After controlling for firm-level variables and industry fixed effects in OLS regression models (not reported), again, these firms suffer lower accounting returns but enjoy higher MTBV. Heckman (1979) Lambdas (not reported) are negative for all performance variables except MTBV, though none is strong enough to imply statistically significant sample selection problems. The disconnection between accounting returns to capital market valuation is puzzling.

I also link the performance measures to the discrepancy between ownership rights and control rights (O/C Ratio). LEV is not considered because these firms are not controlled by ultimate shareholders through lengthy control chains. However, separation of ownership from control still exists due to the use of dual-class structure – 79 out of 130 firms that employ dual-class stocks fall into this ownership category. O/C Ratio has a positive but insignificant impact (not reported) on all performance measures except MTBV, on which the effect is negative and insignificant. This observation echoes the findings for pyramid group firms. Again, I find no reliable evidence that concentrated ownership, especially family control, is associated with possible income shifting in corporate Canada.

VI. Conclusion and Discussion

A central topic in corporate governance is how firms are managed and how competitive firms are under different management mechanisms. The current paper tries to develop some insights into one particular ownership structure, the corporate control pyramid, which is used extensively in Canada. Since most studies of corporate governance use the US data to investigate US corporate governance practice, the economic implications of this common Canadian ownership structure are unknown. This study seeks to fill in this critical gap in our knowledge by studying the linkage between ownership structure and firm performance using Canadian firm-level data.

Classical finance theory assumes that large firms are widely held by thousands of small shareholders. This assumption of diffuse shareholders structure, which is true for most large firms in the US and UK, is not as valid in the Canadian setting. According to data from 1994, a large fraction of Canadian firms have ultimate shareholders owning more than 10% of equities. Many of these firms are organized into control pyramids, through which the ultimate shareholders control a large amount of resources with only limited capital spending. In fact, La Porta *et al.* (1999) and many research papers following it have confirmed that the widely dispersed ownership structure is quite rare in other countries as well.

The extensive use of control pyramids in Canada leads to the nature question of how the firms controlled by pyramids behave differently from widely held firms, and more importantly, whether income-shifting problem exists.

As mentioned in other research papers, ownership rights are not necessarily the same as control rights. This is very true for Canadian pyramids, especially the ones controlled by wealthy families or individuals. The ultimate shareholder controls a group of companies but her ownership in each particular company depends on where that firm locates within her pyramid. The closer a firm is to the bottom of the pyramid, the greater the deviation of cash flow rights from control rights. The average ownership over control ratio for family-controlled pyramids is about 0.55, but it is very close to 1 for pyramids controlled by widely held firms and by government agencies.

On average, pyramid group firms report lower accounting returns, lower Market-to-Book ratio, but higher average Q and higher EVA. Pyramid group firms also distribute more dividends than widely held firms. But after firm-specific characteristics and industry fixed effects are controlled for, most of these performance measures are not significantly different between the two types of companies.

One agency problem, as discussed in previous research on pyramids, is tunneling. Tunneling hypothesis says that, when an ultimate shareholder enjoys disproportionately high control power over firms' resources than her commitment in the firms, she has incentives to divert resources out of firms far away from her (firms closer to the bottom of the pyramids) to firms in which she has high cash flow claims (firms closer to the apex of the pyramids). Two variables are used in investigating this agency problem. The first variable considers its location (i.e. control tier), while the second considers the separation between the ultimate shareholder's control rights in and her equity commitment to the member firm. These two variables are then linked to pyramid group firms' performance measures. Regression results indicate that firms closer to the bottom of a pyramid tend to under-perform firms closer to the apex of the pyramid. However, the findings are not statistically significant enough to support the "tunneling" hypothesis.

Discussion

Why pyramids exist, and the benefits and costs associated with this particular structure of corporate control have been hot topics in corporate governance debate for the past decade or so.

On one hand, studies such as Coase (1960) and Stein (1997) argue that, at the presence of frictions of external financial markets, internal markets can provide benefits by reducing transaction costs or providing co-insurance for group member firms. Firms within a business group can transfer funds among themselves to support firms with higher growth potential or to rescue firms subject to temporary financial distress.

On the other hand, resources, in practice, are not always be allocated efficiently among group members. In a control pyramid, the ultimate shareholder enjoys more controlling power compared to her cash flow commitment in firms belonging to her group. Such deviation of voting rights from cash flow rights may be used by the controlling shareholder to extract private benefits of control at the expense of minority shareholders. This agency problem, called 'tunneling', is investigated by studies such as Claessens, Fan and Lang (2002), and Faccio Lang and Yeung (2000).

The results of the current paper, an empirical analysis based on 1994 Canadian corporate ownership and financial data, are largely insignificant. There is no apparent evidence of coinsurance in stock returns. There is no apparent evidence, either, that controlling shareholders of pyramids tunnel resources for private utility at the expense of minority shareholders. This result is similar to that for Western Europe (Faccio *et al.*, 2000) but different from that for Eastern Asia (Claessens *et a.l*, 2002).

Why, in different countries or regions, control pyramids have different impact on corporate performance? The "law matters" thesis proposed by the La Porta *et al.* argues that securities law, by protecting the interests of minority shareholders against the abuse of controlling shareholders, plays a central role in the development of securities markets and corporate governance. La Porta *et al.* (2003) examine the effect of securities law on stock market development in 49 countries, and report that laws mandating disclosure and facilitating private enforcement through liability rules, rather than public enforcement, benefit stock markets.

If legal origin is the main factor at play, we would expect common law countries, no matter which region they belong to, to have higher La Porta 'Private Enforcement Index' than do civil law countries. We also would expect regions (or, countries) with better securities regulation and enforcement (e.g. Canada) to have less expropriation from minority shareholders than regions (or, countries) with worse securities regulation and enforcement (e.g. East Asian countries).

Appendix 2 summaries the Indices of Regulation of Securities Markets, as reported in La Porta *et al.* (2003). For the purpose of my discussion, I sort the countries by geographical region and legal origin; I then report simple mean values of indices for each geographical region-legal origin. **Appendix 2** shows that, according to both private and public indices, common law countries have tighter securities regulation and more efficient enforcement than civil law countries. Within civil law countries, the ones with French origin are better than the ones with Scandinavian origin or with German origin. This is consistent with the 'law matters' thesis.

Interestingly, **Appendix 2** also shows that, based on both private and public indices, East Asia (private index average 0.74, public 0.49) is superior to Western Europe (private index average 0.60, public 0.39). This contradicts the findings of Claessens *et al.* (2002) and Faccio *et al.* (2000): Western Europe has worse securities regulation and enforcement than East Asia; East Asia is found to have expropriation from minority shareholders but Western Europe is not.

Canadian investors enjoy one of the best investment environments in the world. North American countries, including Canada, have probably the best securities regulation and enforcement in the world; Canada scores high in global shareholder rights ratings (GMI Corporate Governance Score); Canada also enjoys relatively low level of corruption (International Country Risk Guide, and Transparency International). All of these factors may have a role in explaining why corporate Canada, with many corporations controlled by pyramids, does not suffer much to the severe agency problems we see in other countries with similar organizational structure.

So the question remains: why do control pyramids exist? Do they give their controlling shareholders utility from just being in control of bigger empires? Do pyramids give the firms political influence? Future research is certainly needed to continue our understanding of control pyramids, both in Canada and in other parts of the world.

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Figure 1

Ownership Structure: US vs. Canada

Figure 1 illustrates the difference in ownership structure between an archetypical US firm and an archetypical Canadian firm.

A. The Ownership Structure of a Typical Large US Firm

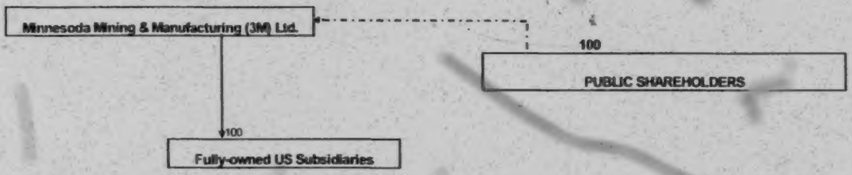

Minnesoda Mining & Manufacturing (3M) Ltd.
100
PUBLIC SHAREHOLDERS
100
Fully-owned US Subsidiaries

FIGURE B IS PART OF THE PYRAMIDAL STRUCTURE OF EDPER BRONFMAN GROUP.
The number attached to each firm represents the percentage ownership rights (O) and control rights ?
held by its upper-level company.

B. The Ownership Structure of a Typical Large Canadian Pyramidal Firm

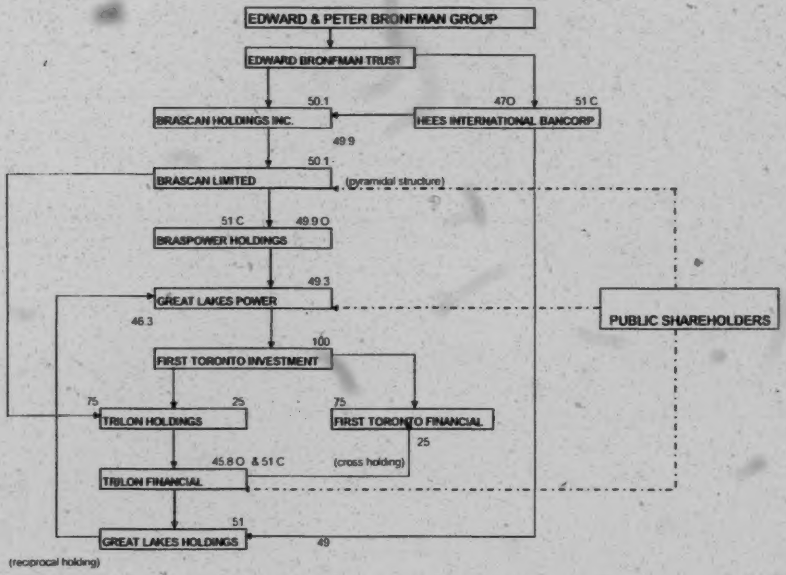

EDWARD & PETER BRONFMAN GROUP
EDWARD BRONFMAN TRUST
50.1
47O
51 C
BRASCAN HOLDINGS INC.
HEES INTERNATIONAL BANCORP
49.9
50.1
BRASCAN LIMITED
(pyramidal structure)
51 C
49.9 O
BRASPOWER HOLDINGS
49.3
GREAT LAKES POWER
46.3
PUBLIC SHAREHOLDERS
100
FIRST TORONTO INVESTMENT
75
25
75
TRILON HOLDINGS
FIRST TORONTO FINANCIAL
25
45.8 O & 51 C
(cross holding)
TRILON FINANCIAL
51
GREAT LAKES HOLDINGS
49
(reciprocal holding)

Figure 2: Ownership Diagrams: Three Pyramid Groups

Diagram 1 is part of George Weston Group, which is the fourth largest family-controlled pyramid in Canada and contains 124 firms. Diagram 2 is a branch of the Canadian Pacific group, the largest corporate-controlled pyramid. It consists of 171 firms. Diagram 3 is a small part of for the corporate group controlled by the Government of Quebec. It is the biggest government-controlled pyramid and includes 262 firms. The main investment arm for Quebec government is the Caisse de Depot et Placement du Quebec.

Diagram 1: George Weston Group

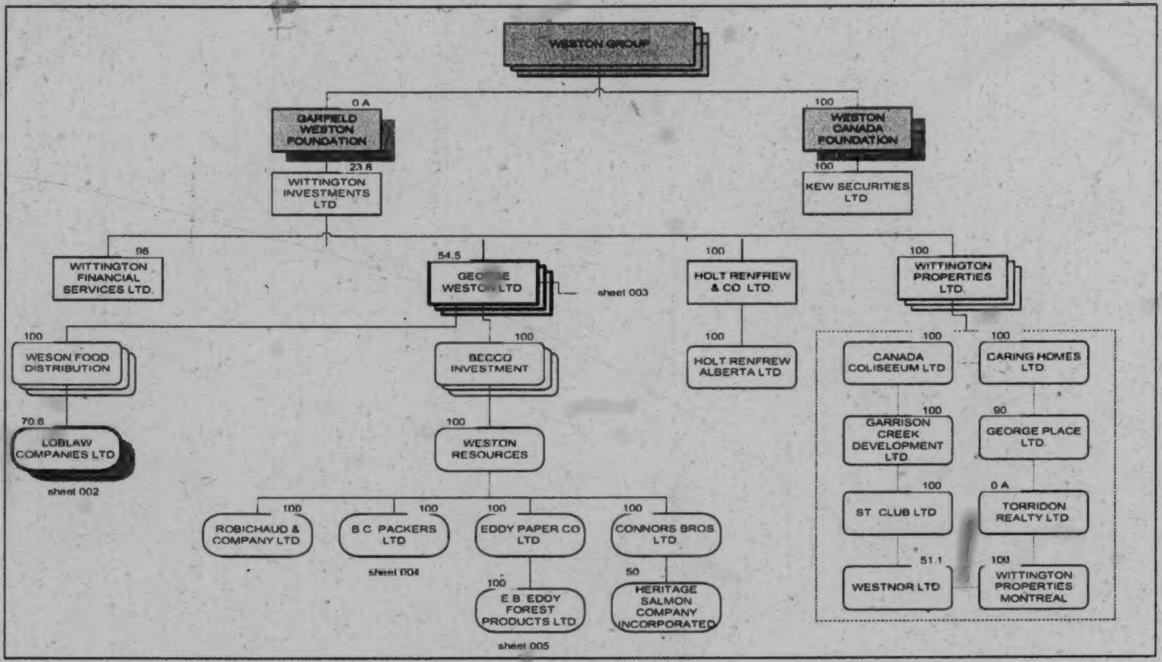

WESTON GROUP
0 A
GARFIELD WESTON FOUNDATION
100
WESTON CANADA FOUNDATION
23.8
WITTINGTON INVESTMENTS LTD
100
KEW SECURITIES LTD
96
WITTINGTON FINANCIAL SERVICES LTD.
54.5
GEORGE WESTON LTD
sheet 003
100
HOLT RENFREW & CO LTD.
100
WITTINGTON PROPERTIES LTD.
100
WESON FOOD DISTRIBUTION
100
BECCO INVESTMENT
100
HOLT RENFREW ALBERTA LTD
70.6
LOBLAW COMPANIES LTD
sheet 002
100
WESTON RESOURCES
100
ROBICHAUD & COMPANY LTD
100
B C PACKERS LTD
sheet 004
100
EDDY PAPER CO LTD
100
E B EDDY FOREST PRODUCTS LTD
sheet 005
100
CONNORS BROS LTD
50
HERITAGE SALMON COMPANY INCORPORATED
100
CANADA COLISEEUM LTD
100
CARING HOMES LTD
100
GARRISON CREEK DEVELOPMENT LTD
90
GEORGE PLACE LTD.
100
ST CLUB LTD
0 A
TORRIDON REALTY LTD
51.1
WESTNOR LTD
100
WITTINGTON PROPERTIES MONTREAL

Diagram 2: Canadian Pacific Ltd.

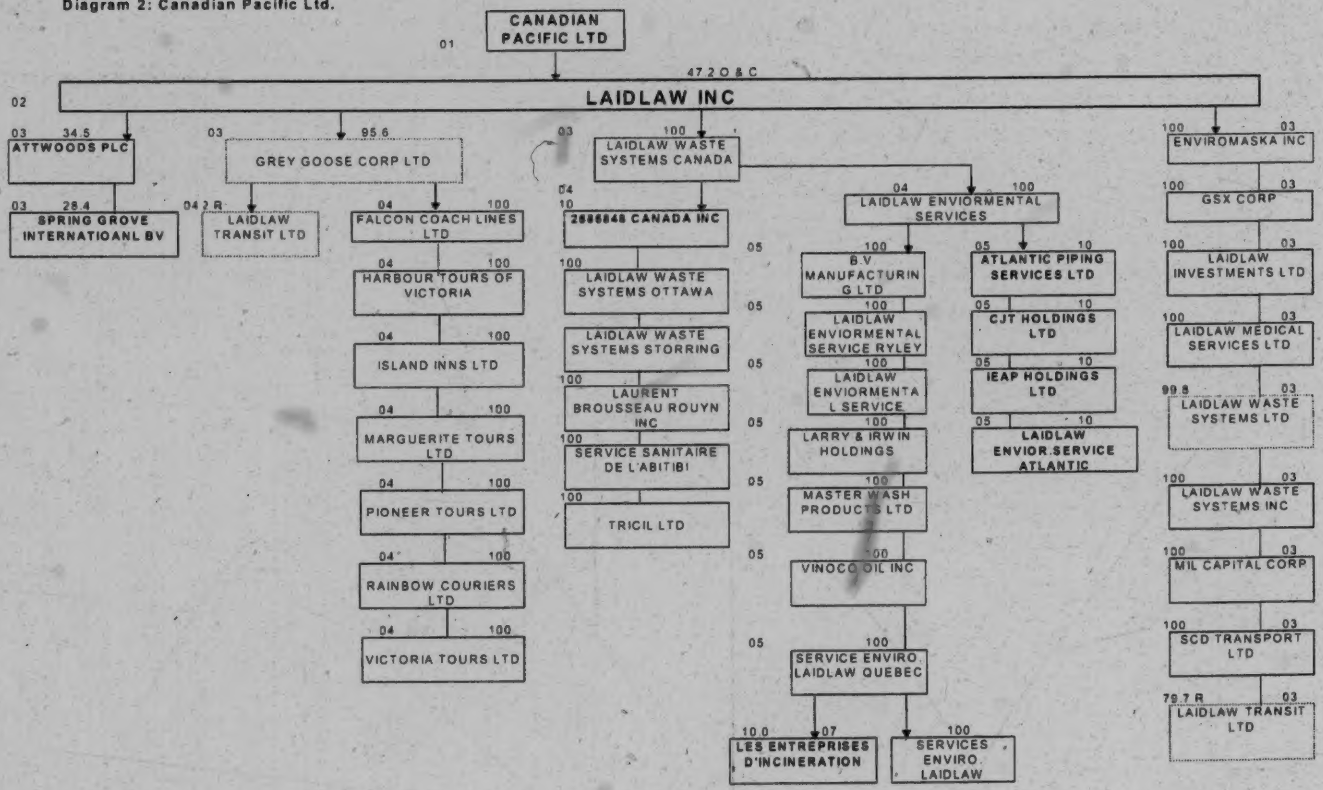
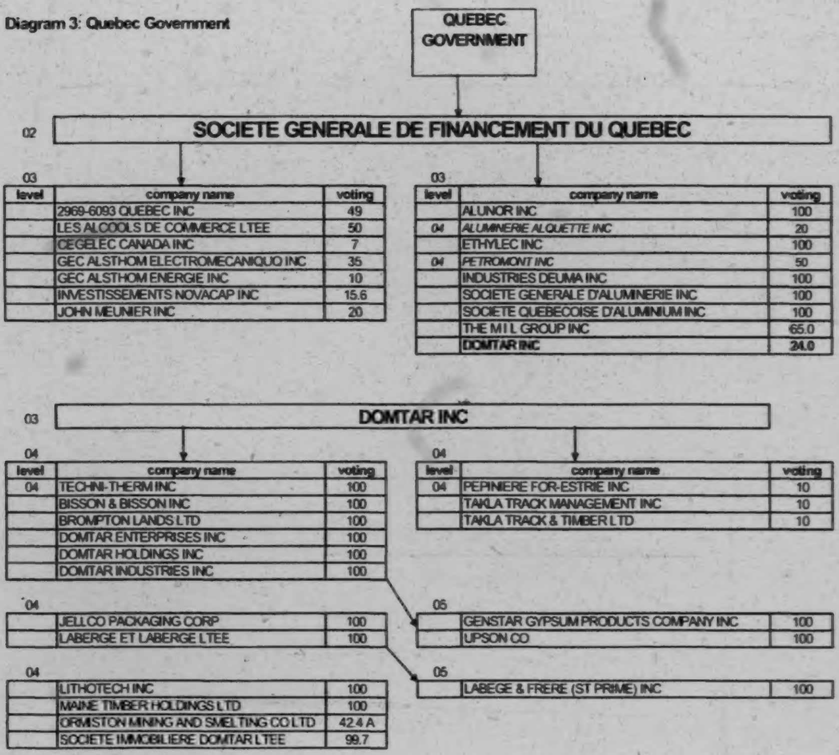

01
CANADIAN PACIFIC LTD
47.2 O & C
02
LAIDLAW INC
03
34.5
ATTWOODS PLC
03
28.4
SPRING GROVE INTERNATIOANL BV
03
95.6
GREY GOOSE CORP LTD
04 2 R
LAIDLAW TRANSIT LTD
04
100
FALCON COACH LINES LTD
04
100
HARBOUR TOURS OF VICTORIA
04
100
ISLAND INNS LTD
04
100
MARGUERITE TOURS LTD
04
100
PIONEER TOURS LTD
04
100
RAINBOW COURIERS LTD
04
100
VICTORIA TOURS LTD
03
100
LAIDLAW WASTE SYSTEMS CANADA
04
10
2686848 CANADA INC
100
LAIDLAW WASTE SYSTEMS OTTAWA
LAIDLAW WASTE SYSTEMS STORRING
100
LAURENT BROUSSEAU ROUYN INC
100
SERVICE SANITAIRE DE L'ABITIBI
100
TRICIL LTD
04
100
LAIDLAW ENVIORMENTAL SERVICES
05
100
B.V. MANUFACTURIN G LTD
05
100
LAIDLAW ENVIORMENTAL SERVICE RYLEY
05
100
LAIDLAW ENVIORMENTA L SERVICE
05
100
LARRY & IRWIN HOLDINGS
05
100
MASTER WASH PRODUCTS LTD
05
100
VINOCO OIL INC
05
100
SERVICE ENVIRO. LAIDLAW QUEBEC
10.0
07
LES ENTREPRISES D'INCINERATION
100
SERVICES ENVIRO. LAIDLAW
05
10
ATLANTIC PIPING SERVICES LTD
05
10
CJT HOLDINGS LTD
05
10
IEAP HOLDINGS LTD
05
10
LAIDLAW ENVIOR.SERVICE ATLANTIC
100
03
ENVIROMASKA INC
100
03
GSX CORP
100
03
LAIDLAW INVESTMENTS LTD
100
03
LAIDLAW MEDICAL SERVICES LTD
99.8
03
LAIDLAW WASTE SYSTEMS LTD
100
03
LAIDLAW WASTE SYSTEMS INC
100
03
MIL CAPITAL CORP
100
03
SCD TRANSPORT LTD
79.7 R
03
LAIDLAW TRANSIT LTD

Diagram 3: Quebec Government



QUEBEC GOVERNMENT

02 **SOCIETE GENERALE DE FINANCEMENT DU QUEBEC**

03

level	company name	voting
	2969-6093 QUEBEC INC	49
	LES ALCOOLS DE COMMERCE LTEE	50
	CEGELEC CANADA INC	7
	GEC ALSTHOM ELECTROMECANIQUO INC	35
	GEC ALSTHOM ENERGIE INC	10
	INVESTISSEMENTS NOVACAP INC	15.6
	JOHN MEUNIER INC	20

03

level	company name	voting
	ALUNOR INC	100
04	*ALUMINERIE ALOUETTE INC*	20
	ETHYLEC INC	100
04	*PETROMONT INC*	50
	INDUSTRIES DEUMA INC	100
	SOCIETE GENERALE D'ALUMINERIE INC	100
	SOCIETE QUEBECOISE D'ALUMINIUM INC	100
	THE M I L GROUP INC	65.0
	DOMTAR INC	**24.0**

03 **DOMTAR INC**

04

level	company name	voting
04	TECHNI-THERM INC	100
	BISSON & BISSON INC	100
	BROMPTON LANDS LTD	100
	DOMTAR ENTERPRISES INC	100
	DOMTAR HOLDINGS INC	100
	DOMTAR INDUSTRIES INC	100

04

level	company name	voting
04	PEPINIERE FOR-ESTRIE INC	10
	TAKLA TRACK MANAGEMENT INC	10
	TAKLA TRACK & TIMBER LTD	10

04

	JELLCO PACKAGING CORP	100
	LABERGE ET LABERGE LTEE	100

05

	GENSTAR GYPSUM PRODUCTS COMPANY INC	100
	UPSON CO	100

04

	LITHOTECH INC	100
	MAINE TIMBER HOLDINGS LTD	100
	ORMISTON MINING AND SMELTING CO LTD	42.4 A
	SOCIETE IMMOBILIERE DOMTAR LTEE	99.7

05

	LABEGE & FRERE (ST PRIME) INC	100

Table 1

Sample Selection Procedure and Frequency Distribution by Type of Ultimate Owner

This table summaries my sample. The initial full sample contains 2,144 companies that have financial records from Report on Business (*ROB*) 1994 database. Ownership and control data are collected from Statistics Canada *Inter-corporate Ownership Directory, Financial Post Survey of Industries, and FP Survey of Mines and Energies*. Excluding firms without reliable ownership information, firms controlled by foreign investors, and firms controlled by free-standing ultimate shareholders, 1,567 firms are used in following statistical analysis.

Panel A displays sample selection criteria and the number of companies in each ownership category. Panel B report the incidence of single-class stock, dual-class stock, trust units (including partnership units) and non-traded firms. Panel C summaries simple descriptive statistics of the sample.

Table 1 Panel A

	10% cutoff		20% cutoff	
Selection Criteria	**Number**	**Percentage**	**Number**	**Percentage**
Fall Sample -- All Firms In ROB 1994	**2144**	**100%**	**2144**	**100%**
Firms without ownership data	**226**	**11%**	**226**	**11%**
Firms controlled by foreign investors	**372**	**17%**	**351**	**16%**
Firms in my Sample	**1546**	**72%**	**1567**	**73%**

	10% cutoff		20% cutoff	
Analysis of the Sample	**Number**	**Percentage**	**Number**	**Percentage**
Firms in my Sample	**1546**	**100%**	**1567**	**100%**
Widely held firms (without controlling shareholders)	**549**	**36%**	**740**	**47%**
Firms with controlling shareholders				
Firms controlled by a stand-free ultimate owners	**568**	**37%**	**440**	**28%**
Firms controlled by ultimate owners through Pyramid	**429**	**28%**	**387**	**25%**
Firms controlled by wealthy families or individuals	174	11%	154	10%
Firms controlled by financial & other insititutions	51	3%	48	3%
Firms controlled by non-financial corporations	136	9%	120	8%
Firms controlled by government agencies	68	4%	65	4%

Table 1 (Continued)

Sample Selection Procedure and Frequency Distribution by Type of Ultimate Owner

This table summaries my sample. The initial full sample contains 2,144 companies that have financial records from Report on Business (*ROB*) 1994 database. Ownership and control data are collected from Statistics Canada *Inter-corporate Ownership Directory, Financial Post Survey of Industries, and FP Survey of Mines and Energies*. Excluding firms without reliable ownership information, firms controlled by foreign investors, and firms controlled by free-standing ultimate shareholders, 1,127 firms are used in following statistical analysis.

Panel A displays sample selection criteria and the number of companies in each ownership category. Panel B report the incidence of single-class stock, dual-class stock, trust units (including partnership units) and non-traded firms. Panel C summaries simple descriptive statistics of the sample.

Table 1 panel B

@ 20% cutoff	Single class stocks	Voting vs. Non-voting stocks	Multiple vs. Subordinate voting stocks	Trust Units	Not traded	Total
Firms without controlling shareholder	651	5	6	3	75	740
Firms controlled by a stand-free ultimate owner	307	28	51	0	54	440
Pyramid firms controlled by wealthy families or individuals	93	17	15	0	30	155
Pyramid firms controlled corporate shareholders	106	6	2	0	53	167
Pyramid firms controlled by government agencies	7	0	0	0	58	65
total	1164	56	74	3	270	1567

@ 10% cutoff	Single class stocks	Voting vs. Non-voting stocks	Multiple vs. Subordinate voting stocks	Trust Units	Not traded	Total
Firms without controlling shareholder	490	1	3	3	52	549
Firms controlled by a stand-free ultimate owner	428	32	54	0	54	568
Pyramid firms controlled by wealthy families or individuals	110	17	15	0	32	174
Pyramid firms controlled corporate shareholders	126	6	2	0	53	187
Pyramid firms controlled by government agencies	10	0	0	0	58	68
total	1164	56	74	3	249	1546

Table 1 (Continued)

Sample Selection Procedure and Frequency Distribution by Type of Ultimate Owner

This table summaries my sample. The initial full sample contains 2,144 companies that have financial records from Report on Business (*ROB*) 1994 database. Ownership and control data are collected from Statistics Canada *Inter-corporate Ownership Directory*, *Financial Post Survey of Industries, and FP Survey of Mines and Energies*. Excluding firms without reliable ownership information, firms controlled by foreign investors, and firms controlled by free-standing ultimate shareholders, 1,127 firms are used in following statistical analysis.

Panel A displays sample selection criteria and the number of companies in each ownership category. Panel B report the incidence of single-class stock, dual-class stock, trust units (including partnership units) and non-traded firms. Panel C summaries simple descriptive statistics of the sample.

TABLE 1 Panel C SAMPLE DESCRIPTIVE STATISTICS (@ 20% cut off)

		FULL SAMPLE			
Category	***NUMBER***	***Log (Assets)***	***Log (Revenue)***	***Log (Sales)***	***O/C Ratio***
Widely held firms	**740**	**21.225**	**19.420**	**19.137**	**1.000**
Firms controlled by pyramids	**387**	**21.481**	**20.110**	**20.110**	**0.796**
Firms controlled by stand-free owners	**440**	**18.860**	**18.849**	**18.849**	**0.920**
Firms whose ownership data are not available	**226**	**19.710**	**17.848**	**17.847**	**1.000**
foreign controlled firms	**351**	**20.333**	**20.258**	**20.258**	**1.000**
TOTAL/AVG	**2144**	**20.322**	**19.297**	**19.240**	**0.943**

		PYRAMID SAMPLE			
Ultimate Owner	***NUMBER***	***Log (Assets)***	***Log (Revenue)***	***Log (Sales)***	***O/C Ratio***
Wealthy Families or Individuals	**154**	**21.578**	**20.791**	**20.435**	**0.55**
Government Agencies	**65**	**22.258**	**20.588**	**20.260**	**0.98**
Corporations	**120**	**20.365**	**19.913**	**19.834**	**0.97**
Financial or other Insititutions	**48**	**21.220**	**19.286**	**18.220**	**0.89**
TOTAL/AVG	**387**	**21.355**	**20.145**	**19.687**	**0.85**

Table 2

Descriptive Statistics by Types of Company

This table summaries the key firm-level control variables. Panel A reports mean and median values of these variables, and Panel B outlines Pearson correlation matrix. All financial data are collected from Report on Business (*ROB*) database. The number of companies for each type may be smaller than the total number of companies belongs to that type due to missing values. The key firm-level control variables are Size, Leverage, Age, R&D, Risk and Growth Rate. Size is defined as logarithm of total assets; Leverage is defined as the ratio of long-term debt to total assets; Age is calculated as accumulative depreciation over total fixed assets; R&D is defined as Research & Development expenditures divided by total assets; Risk is defined as the standard error of market model (taking into account of $US/$C exchange rates) estimates; and Growth Rate is the firm's average growth rate of profits over the past five years.

TABLE 2 Panel A — **UNIVARIATE STATISTICS FOR FIRM-LEVEL VARIABLES (@ 20% cut off)**

	NUMBER	**MEAN**					
Category		***Size (asset)***	***Leverage***	***Age***	***R&D***	***Risk***	***Growth***
Widely held firms	479	17.36	0.37	0.10	1.53	0.09	6.12
Firms controlled by stand-free owners	318	17.15	0.45	0.09	1.31	0.08	4.87
Firms controlled by pyramids							
Wealthy Families or Individuals	83	19.65	0.48	0.06	0.24	0.07	10.76
Government Agencies	41	20.12	0.48	0.04	0.51	0.06	7.19
Non-financial Corporations	74	18.60	0.47	0.07	2.28	0.08	2.86
Financial or other Insititutions	19	17.44	0.54	0.12	2.25	0.07	-0.82
TOTAL/AVERAGE	1014	18.39	0.46	0.08	1.35	0.08	5.16

		MEDIAN					
Category		***Size (asset)***	***Leverage***	***Age***	***R&D***	***Risk***	***Growth***
Widely held firms	479	17.08	0.37	0.08	0.00	0.07	0.00
Firms controlled by stand-free owners	318	17.30	0.47	0.07	0.00	0.07	0.00
Firms controlled by pyramids							
Wealthy Families or Individuals	83	19.70	0.54	0.06	0.00	0.06	2.55
Government Agencies	41	20.34	0.53	0.03	0.00	0.06	0.00
Non-financial Corporations	74	18.65	0.52	0.07	0.00	0.06	0.00
Financial or other Insititutions	19	17.23	0.44	0.10	0.00	0.04	0.00
TOTAL/AVERAGE	1014	18.38	0.48	0.07	0.00	0.06	0.42

Table 2 (Continued)

Descriptive Statistics by Types of Company

This table summaries the key firm-level control variables. Panel A reports mean and median values of these variables, and Panel B outlines Pearson correlation matrix. All financial data are collected from Report on Business (*ROB*) database. The number of companies for each type may be smaller than the total number of companies belongs to that type due to missing values. The key firm-level control variables are Size, Leverage, Age, R&D, Risk and Growth Rate. Size is defined as logarithm of total assets; Leverage is defined as the ratio of long-term debt to total assets; Age is calculated as accumulative depreciation over total fixed assets; R&D is defined as Research & Development expenditures divided by total assets; Risk is defined as the standard error of market model (taking into account of $US/$C exchange rates) estimates; and Growth Rate is the firm's average growth rate of profits over the past five years.

Table 2 Panel B Pearson Correlation Matrix for Firm-level Variables

	SIZE	DEBT	AGE	RD	GROWTH	RISK
SIZE	1.000	0.427	-0.195	-0.126	0.209	-0.153
DEBT		1.000	-0.134	-0.062	0.054	-0.103
AGE			1.000	0.158	-0.040	0.075
RD				1.000	-0.057	0.008
GROWTH					1.000	-0.002
MRISK						-0.078
FRISK						1.000
OWN						

Table 3

Means and Median Scores of Performance Measures

This table reports mean values and median scores of various performance measures across pyramid firms and widely held firms, and across firms belonging to different types of pyramids and widely held firms. Return on Asset is defined as income before depreciations, interests and taxes over total assets; Return on Equity is defined as net income over total book equity; Economic Value added is defined as the difference between a company's cash flows and its annualized capital costs; Average Q Ratio is approximated as the sum of market value of stocks and book value of debt divided by total assets; Market-to-Book ratio is defined as book value of common stocks over market value of common stocks; Dividend Payout is total dividends over net income.

All Pyramid Firms vs. Widely Held Firms

	# firms	Mean	Median Scores	Maximum	Mininum
Return on Asset (EBITDA)					
Widely held	691	0.183	0.543	0.987	-0.045
Pyramid	365	0.135	0.419	0.838	-0.033
Difference		**0.049**	**0.124**	0.149	-0.012
t-stat / z-stat		4.910	3.816		
Return on Equity (net income)					
Widely held	676	0.185	0.475	1.756	0.000
Pyramid	303	0.221	0.558	1.650	-0.006
Difference		**-0.037**	**-0.083**	0.106	0.006
t-stat / z-stat		-2.180	-2.378		
Economic Value Added					
Widely held	648	10.509	0.420	22.167	0.000
Pyramid	329	13.468	0.657	21.725	0.000
Difference		**-2.959**	**-0.237**	0.442	0.000
t-stat / z-stat		-6.340	-6.992		
Average Q					
Widely held	540	2.220	0.531	24.872	0.042
Pyramid	252	1.872	0.433	41.253	0.116
Difference		0.348	**0.099**	-16.381	-0.074
t-stat / z-stat		1.650	2.592		
Market to Revenue					
Widely held	364	6.244	0.593	49.575	0.035
Pyramid	273	3.576	0.374	28.525	0.081
Difference		**2.667**	**0.220**	21.050	-0.046
t-stat / z-stat		4.700	5.486		
Market to Book Equity					
Widely held	593	2.556	0.484	35.150	0.039
Pyramid	256	3.036	0.535	41.493	0.014
Difference		**-0.480**	-0.051	-6.343	0.025
t-stat / z-stat		-3.150	-1.368		
Dividend Payout Ratio					
Widely held	564	0.072	0.457	0.998	0.000
Pyramid	230	0.179	0.606	0.998	0.000
Difference		**-0.108**	**-0.149**	0.000	0.000
t-stat / z-stat		-5.440	-5.812		

Family-controlled Pyramid Firms vs. Widely Held Firms

	# firms	Mean	Median Scores	Maximum	Mininum
Return on Asset (EBITDA)					
Widely held	691	0.183	0.533	0.987	-0.045
Pyramid	144	0.103	0.340	0.532	-0.006
Difference		**0.081**	**0.192**	0.454	-0.039
		8.440	4.196		
Return on Equity (net income)					
Widely held	676	0.185	0.485	1.756	0.000
Pyramid	131	0.192	0.573	1.650	-0.006
Difference		**-0.007**	**-0.088**	0.106	0.006
		-2.150	-1.830		
Economic Value Added					
Widely held	648	10.509	0.457	22.167	0.000
Pyramid	132	13.503	0.712	20.693	0.000
Difference		**-2.994**	**-0.255**	1.474	0.000
		-4.450	-5.344		
Average Q					
Widely held	540	2.220	0.526	24.872	0.042
Pyramid	130	1.510	0.392	5.954	0.092
Difference		**0.710**	**0.134**	18.918	-0.050
		5.560	2.733		
Market to Revenue					
Widely held	364	6.244	0.533	49.575	0.035
Pyramid	125	5.411	0.353	41.500	0.312
Difference		**0.833**	**0.180**	8.075	-0.277
		0.820	2.980		
Market to Book Equity					
Widely held	593	2.556	0.484	35.150	0.039
Pyramid	133	3.876	0.571	35.283	0.139
Difference		**-1.320**	-0.087	-0.133	-0.100
		-2.610	-1.822		
Dividend Payout Ratio					
Widely held	564	0.072	0.466	0.998	0.000
Pyramid	124	0.215	0.655	0.992	0.000
Difference		**-0.144**	**-0.189**	0.006	0.000
t-stat / z-stat		-5.290	-5.980		

Table 4

The Effect of Pyramid Ownership Structure on Performance Measures: OLS Regression

This table reports OLS regression results of performance measures on pyramid group membership, after controlling for firm-specific characteristics (Size, Leverage, Age, R&D, Risk and Growth Rate) and industry effects. Dummy variable Pyramid equals one if a company is controlled by its ultimate shareholder through pyramidal structure and zero if the company is widely held without controlling shareholder. Dummy variable Apex (P) equals one for family-controlled pyramid firms; Apex (S) equals one for government-controlled pyramid firms; Apex (C) equals one for corporate-controlled pyramid firms.

Model 1 is stepwise OLS regression; model 2 includes two industry dummy variables – Media and Utilities – to control for heavily regulated sectors; model 3 is the generalized linear model (GLM) which is heteroscedasticity-consistent and takes into account all industries.

$$Performance_i = \sum INDS + \beta_1 * SIZE_i + \beta_2 * AGE_i + \beta_3 * LEVERAGE_i + \beta_4 * R\&D_i + \beta_5 * RISK_i + \beta_6 * GROWTH_i + \delta * Pyramid + \varepsilon_i$$

Panel A: All Pyramid Group Firms vs. Widely Held Companies without Controlling Shareholders

	ROA			ROE			EVA			AVQ			MR			MTBV		
	model (1)	model (2)	model (3)	model (1)	model (2)	model (3)	model (1)	model (2)	model (3)	model (1)	model (2)	model (3)	model (1)	model (2)	model (3)	model (1)	model (2)	model (3)
Constant	0.963	0.979		1.928	1.855		-7.780	-6.267		5.592	5.447		11.360	13.158		-2.904	-1.886	
		8.120			6.410			-2.440			4.650			4.440			-0.990	
Pyd. Dummy		0.017	0.027		-0.010	-0.001		0.922	1.005		-0.095	-0.146		-1.893	-0.612		1.104	1.049
		0.53	0.82		-0.13	-0.10		1.74	1.76		-0.33	-0.50		-2.90	-0.89		2.23	2.06
Size	-0.048	-0.049	-0.049	-0.112	-0.108	-0.106	1.235	1.195	1.283	-0.168	-0.158	-0.019	-0.209	-0.364	-0.357	0.330	0.319	0.285
		-7.47	-7.01		-6.84	-6.32		8.96	9.29		-2.43	-2.79		-2.10	-1.99		3.04	2.59
Leverage	0.251	0.257	0.293	0.974	0.991	1.049		-0.442	-0.925	-1.676	-1.696	-1.302	-7.279	-7.178	-5.400		-0.276	-1.039
		4.39	4.41		7.03	6.50		-0.31	-0.61		-2.92	-1.89		-4.47	-3.29		-0.29	-0.95
Age		0.022	0.023		-0.001	-0.001		-0.417	0.132		-0.025	-0.005	0.561	0.582	0.466		-0.089	-0.147
		1.22	1.21		-0.07	-0.13		-0.16	0.05		-0.15	-0.03		3.07	2.52		-0.30	-0.52
R&D	0.585	0.590	0.664	1.026	1.015	0.995		-9.510	-9.221	7.225	7.290	6.119		-1.664	5.818	2.187	1.780	-0.971
		3.02	2.97		2.19	1.87		-0.80	-0.77		3.99	3.00		-0.26	0.89		0.59	-0.28
Risk		0.046	0.054	-0.519	-0.484	-0.520	-0.641	-0.545	-0.630		0.412	-0.419	-3.525	-1.485	-3.102		1.921	1.387
		0.24	0.27		-1.05	0.27		-1.49	-1.65		0.82	-0.23		-1.02	-1.10		0.63	0.45
Growth		0.000	0.000		0.000	-0.001		0.008	0.002		0.004	0.007		-0.011	-0.015		0.016	0.019
		0.50	0.25		-0.14	-0.26		1.13	0.22		0.63	0.99		-0.68	-1.00		1.39	1.73
Media		-0.036			-0.119			0.971			0.362			0.809			-0.278	
		-0.49			-0.66			1.14			0.51			0.56			-0.21	
Utility		-0.003			-0.103			0.892			0.363			5.436			-1.278	
		-0.04			-0.68			0.93			0.53			2.53			-1.21	
F-stat	25.970	8.750	4.140	19.650	8.730	4.040	37.870	13.470	7.100	14.010	6.200	3.360	9.890	6.480	4.960	6.940	3.070	1.780
multiple R2		0.185	0.217		0.185	0.203		0.349	0.411		0.156	0.195		0.160	0.262		0.080	0.109
Adjusted R2	0.174	0.164	0.167	0.174	0.164	0.153	0.320	0.323	0.353	0.143	0.130	0.137	0.105	0.128	0.201	0.052	0.053	0.044

Table 5

Impact of Self-selection (Pyramid Group Membership) Bias on Performance Measures

The table compares OLS regressions and 2-stage models that control for self-selection bias. The probit regressions estimate the probability that a firm joins pyramid group. The regressions estimate the performance impact of pyramidal structure using OLS and the Heckman 2-stage estimator. For each firm the Instrumental variable, IV, is defined as the difference between this year's Size and last year's Size. Size is defined as logarithm of total assets; Leverage is defined as the ratio of long-term debt to total assets; Age is calculated as accumulative depreciation over total fixed assets; R&D is defined as Research & Development expenditures divided by total assets; Risk is defined as the standard error of CAPM model (taking into account of $US/$C exchange rates) estimates; and Growth Rate is the firm's average growth rate of profits over the past five years.

Dept: ROA	**Performance**		**Ownership**	
	OLS	Heckman		Heckman
Constant	0.979	0.470	**Constant**	-3.619
	8.12	4.40		52.32
Pyd. Dummy	0.017	-0.087	**IV**	-0.116
	0.53	-0.64		1.91
Lambda		0.052		
		0.66		
Size	-0.049	-0.017		
	-7.47	-2.20		
Leverage	0.257	0.100	**Leverage**	0.187
	4.39	3.68		0.50
Age	0.022	0.002		
	1.22	0.91		
R&D	0.590	0.764		
	3.02	7.87		
Risk	0.046	0.002	**Risk**	-0.088
	0.24	-0.32		1.80
Growth	0.000	-0.001	**Growth**	-0.007
	0.50	-0.22		3.34
Media	-0.036	-0.003	**Media**	0.824
	-0.49	-0.05		11.99
Utilities	-0.003	0.034	**Utilities**	0.699
	-0.04	0.72		7.47
F-Stat	8.750	13.630		
Adj - R2	0.164	0.161		

Dept: ROE	**Performance**		**Ownership**	
	OLS	Heckman		Heckman
Constant	1.855	0.608	**Constant**	-3.882
	6.41	5.79		27.68
Pyd. Dummy	-0.010	0.165	**IV**	-0.330
	-0.13	1.33		3.04
Lambda		-0.098		
		-1.51		
Size	-0.108	-0.032		
	-6.04	-4.17		
Leverage	0.991	0.183	**Leverage**	0.274
	7.03	5.83		0.93
Age	-0.001	0.001		
	-0.07	0.62		
R&D	1.015	0.653		
	2.19	3.80		
Risk	-0.484	-0.004	**Risk**	0.010
	-1.05	-0.45		0.20
Growth	0.000	0.000	**Growth**	-0.007
	-0.14	0.01		3.47
Media	-0.119	-0.088	**Media**	0.087
	-0.66	-1.87		2.52
Utilities	-0.103	-0.084	**Utilities**	0.663
	-0.68	-1.91		6.66
F-Stat	8.730	11.140		
Adj - R2	0.164	0.139		

Dept: EVA	**Performance**		**Ownership**	
	OLS	Heckman		Heckman
Constant	-6.267	-13.460	**Constant**	-3.613
	-2.440	-3.59		50.53
Pyd. Dummy	0.922	0.123	**IV**	-0.177
	1.74	0.03		2.88
Lambda		0.213		
		0.08		
Size	1.195	1.357		
	8.96	4.85		
Leverage	-0.442	7.672	**Leverage**	0.190
	-0.31	7.34		0.50
Age	-0.417	0.071		
	-0.16	1.12		
R&D	-9.510	-6.422		
	-0.80	-2.60		
Risk	-0.545	-1.492	**Risk**	-0.139
	-1.49	-4.31		3.04
Growth	0.008	0.013	**Growth**	0.007
	1.13	0.76		3.57
Media	0.971	0.756	**Media**	0.694
	1.14	0.49		8.25
Utilities	0.892	0.099	**Utilities**	0.688
	0.93	0.06		6.72
F-Stat	13.470	42.980		
Adj - R2	0.323	0.393		

Table 5 (Continued)

Impact of Self-selection (Pyramid Group Membership) Bias on Performance Measures

The table compares OLS regressions and 2-stage models that control for self-selection bias. The probit regressions estimate the probability that a firm joins pyramid group. The regressions estimate the performance impact of pyramidal structure using OLS and the Heckman 2-stage estimator. For each firm the Instrumental variable, IV, is defined as the difference between this year's Size and last year's Size. Size is defined as logarithm of total assets; Leverage is defined as the ratio of long-term debt to total assets; Age is calculated as accumulative depreciation over total fixed assets; R&D is defined as Research & Development expenditures divided by total assets; Risk is defined as the standard error of CAPM model (taking into account of $US/$C exchange rates) estimates; and Growth Rate is the firm's average growth rate of profits over the past five years.

Dept: AVQ	Performance		Ownership	
	OLS	Heckman		Heckman
Constant	**5.447**	**5.161**	**Constant**	**-3.414**
	4.65	3.61		19.47
Pyd. Dummy	**-0.095**	**0.682**	**IV**	**-0.083**
	-0.33	0.33		1.09
Lambda		**-0.462**		
		-0.38		
Size	**-0.158**	**-0.163**		
	-2.43	-1.52		
Leverage	**-1.696**	**-1.453**	**Leverage**	**0.223**
	-2.92	-2.34		0.02
Age	**-0.025**	**0.489**		
	-0.15	4.57		
R&D	**7.290**	**4.995**		
	3.99	2.81		
Risk	**0.412**	**-0.229**	**Risk**	**-0.075**
	0.82	-0.99		1.14
Growth	**0.004**	**0.004**	**Growth**	**-0.006**
	0.63	0.70		2.65
Media	**0.362**	**0.136**	**Media**	**0.910**
	0.51	0.18		8.78
Utilities	**0.363**	**-0.047**	**Utilities**	**0.483**
	0.53	-0.08		2.91
F-Stat	14.010	6.060		
Adj - R2	0.143	0.089		

Dept: MTBV	Performance		Ownership	
	OLS	Heckman		Heckman
Constant	**-1.886**	**-1.220**	**Constant**	**-3.456**
	-0.99	-0.44		22.70
Pyd. Dummy	**1.104**	**3.019**	**IV**	**-0.056**
	2.23	0.71		0.78
Lambda		**-1.302**		
		-0.52		
Size	**0.319**	**0.195**		
	3.04	0.98		
Leverage	**-0.276**	**-0.588**	**Leverage**	**0.289**
	-0.29	-0.72		1.07
Age	**-0.089**	**0.107**		
	-0.30	0.64		
R&D	**1.780**	**0.332**		
	0.59	0.12		
Risk	**1.921**	**0.191**	**Risk**	**-1.733**
	0.63	0.94		1.40
Growth	**0.016**	**0.016**	**Growth**	**-0.006**
	1.39	1.34		2.78
Media	**-0.278**	**0.632**	**Media**	**0.821**
	-0.21	0.43		9.29
Utilities	**-1.278**	**-1.201**	**Utilities**	**0.495**
	-1.21	-1.00		3.06
F-Stat	8.070	3.930		
Adj - R2	0.053	0.048		

Dept: MR	Performance		Ownership	
	OLS	Heckman		Heckman
Constant	**13.158**	**8.884**	**Constant**	**-5.595**
	4.44	1.47		48.42
Pyd. Dummy	**-1.893**	**-6.576**	**IV**	**0.390**
	-2.90	-1.26		3.52
Lambda		**3.739**		
		1.27		
Size	**-0.364**	**0.170**		
	-2.10	0.45		
Leverage	**-7.178**	**-1.215**	**Leverage**	**-0.048**
	-4.47	-2.44		0.01
Age	**0.582**	**0.466**		
	3.07	0.75		
R&D	**-1.664**	**1.005**		
	-0.26	1.24		
Risk	**-1.485**	**-0.224**	**Risk**	**-0.080**
	-1.02	-0.50		0.62
Growth	**-0.011**	**-0.031**	**Growth**	**-0.003**
	-0.68	-1.62		0.34
Media	**0.809**	**5.088**	**Media**	**1.325**
	0.56	1.92		18.91
Utilities	**5.436**	**2.293**	**Utilities**	**-0.334**
	2.53	1.06		0.62
F-Stat	14.010	7.220		
Adj - R2	0.143	0.135		

Table 6

Comparison of Average Performance: High-tier Family Pyramid firms vs. Low-tier Firms

The table reports the mean performance measures of family pyramid group firms at different locations. High-tier firms are pyramid firms that locate at upper-half in a pyramid, and low-tier firms are those that locate at lower-half in the pyramid. The division is based on either LEV or O/C Ratio. LEV is defined as the natural logarithm of a pyramid firm's location. O/C Ratio is the ownership-over-control ratio. Ownership is defined as the sum of direct and indirect ownership of voting equity, and Control is defined as the sum of direct and indirect control. Indirect ownership equals the product of percentage ownership along a chain of control, and indirect control equals the minimum percentage along the same chain of control.

	ROA	ROE	EVA	AVQ	MTBV	DIV
LEV (median)						
Higher-tier	0.127	0.329	14.379	1.569	4.289	0.201
Lower-tier	0.086	0.182	12.952	1.474	3.602	0.227
t-value	*2.97*	*2.77*	*1.19*	*0.67*	*0.68*	*-0.49*
Widely held	0.183	0.185	10.509	2.220	2.556	0.072
RATIO (median)						
Higher-tier	0.111	0.248	13.211	1.522	4.043	0.237
Lower-tier	0.094	0.232	13.876	1.499	3.679	0.189
t-value	*1.73*	*0.32*	*-0.55*	*0.15*	*0.37*	*0.91*
Widely held	0.183	0.185	10.509	2.220	2.556	0.072

Level Mean: Family = 4.976; Corporate = 2.446; Government = 2.317
Level Median: Family = 4; Corporate 2; Government = 2

Ratio Mean: Family = 0.551; Corporate = 0.971; Government = 0.979
Ratio Median: Family = 0.51; Corporate = 1.0; Government = 1.0

Table 7

The Effect of Position within Control Pyramid on Performance Measures

The table reports OLS regression results when performance measures are regressed on position variables, LEV and O/C Ratio, of pyramid firms, after controlling for firm-specific characteristics (Size, Leverage, Age, R&D, Risk and Growth) and industry fixed effects. LEV is defined as logarithm of the number of tier of the pyramid between the firm in question and the pyramid apex firm, based on *Inter-corporate Ownership database*. Firms nearer the apex have lower values of LEV, and LEV is zero for the apex firm itself. O/C Ratio is the ownership-over-control ratio. Ownership is defined as the sum of direct and indirect ownership of voting equity, and Control is defined as the sum of direct and indirect control. Indirect ownership equals the product of percentage ownership along a chain of control, and indirect control equals the minimum percentage along the same chain of control.

Panel A: All Pyramid Group Firms -- Level

	ROA	ROE	EVA	AVQ	MR	MTBV
Constant	**0.489**	**0.555**	**-9.099**	**3.170**	**10.848**	**-5.510**
	3.790	2.750	-3.620	4.360	2.230	-1.420
LEV	**-0.007**	**-0.011**	**0.002**	**-0.199**	**1.979**	**-0.309**
	-0.22	-0.24	0.01	-1.31	1.20	-0.37
Family * LEV	**-0.006**	**0.012**	**-0.612**	**0.071**	**-0.396**	**-0.110**
	-0.20	0.24	-1.29	0.39	-0.36	-0.11
Size	**-0.024**	**-0.029**	**1.265**	**-0.050**	**-0.221**	**0.522**
	-3.46	-2.53	10.60	-1.36	-0.93	2.59
Leverage	**0.191**	**0.286**	**0.295**	**-0.491**	**-3.617**	**-0.491**
	3.93	2.78	0.28	-3.18	-3.81	-0.72
Age	**0.513**	**0.982**	**1.309**	**0.151**	**-3.206**	**0.409**
	1.56	2.00	2.08	0.09	-2.90	0.25
R&D	**0.545**	**0.406**	**-9.229**	**0.687**	**3.418**	**-3.122**
	2.72	1.34	-0.75	0.53	4.11	-0.48
Risk	**0.172**	**0.247**	**-0.058**	**0.351**	**0.335**	**0.351**
	0.64	0.62	-0.27	0.41	0.40	0.41
Growth	**0.000**	**0.000**	**0.005**	**-0.002**	**-0.006**	**-0.002**
	-0.04	-0.03	0.63	-0.56	-0.19	-0.04
Media	**-0.035**	**-0.099**	**0.117**	**0.359**	**-0.750**	**1.357**
	-0.78	-1.46	0.23	1.51	-0.53	0.97
Utility	**0.007**	**-0.063**	**0.343**	**-0.146**	**-1.876**	**-0.880**
	0.14	-0.86	0.51	-0.52	-1.13	-0.58
F-stat	11.080	6.890	16.630	2.140	4.390	1.470
multiple R2	0.317	0.230	0.622	0.111	0.219	0.078
Adjusted R2	**0.285**	**0.193**	**0.585**	**0.053**	**0.163**	**0.019**

Panel B: All Pyramid Group Firms -- O/C Ratio

	ROA	ROE	EVA	AVQ	MR	MTBV
Constant	**0.477**	**0.875**	**-11.974**	**2.515**	**13.186**	**-5.038**
	5.880	4.790	-3.260	3.660	2.600	-1.240
O/C Ratio	**0.057**	**-0.002**	**0.021**	**0.039**	**-0.964**	**-1.086**
	1.57	-0.03	0.01	0.10	-0.65	-0.68
Family * O/C	**0.014**	**-0.034**	**0.754**	**0.094**	**-1.015**	**0.597**
	0.57	-0.64	0.88	0.30	-0.80	0.53
Size	**-0.023**	**-0.047**	**1.358**	**-0.041**	**-0.174**	**0.507**
	-5.13	-4.90	7.42	-1.31	-0.72	2.48
Leverage	**0.085**	**0.442**	**1.746**	**-0.483**	**-3.675**	**-0.505**
	4.77	5.39	1.11	-3.12	-3.87	-0.63
Age	**0.485**	**0.035**	**1.609**	**0.016**	**-3.368**	**0.454**
	7.33	3.24	1.22	0.01	-3.01	0.28
R&D	**0.702**	**0.861**	**8.836**	**0.782**	**3.291**	**-2.778**
	4.86	2.72	0.79	0.60	3.94	-0.43
Risk	**0.159**	**0.246**	**0.084**	**0.373**	**0.332**	**2.448**
	0.59	0.61	0.19	0.34	0.36	0.08
Growth	**0.000**	**0.000**	**-0.004**	**-0.001**	**-0.013**	**0.025**
	-0.03	-0.25	-0.28	-0.30	-0.43	0.87
Media	**-0.025**	**-0.099**	**0.676**	**0.353**	**-0.481**	**1.519**
	-0.91	-1.45	0.60	1.47	-0.34	1.07
Utility	**-0.087**	**-0.069**	**0.031**	**-0.205**	**-1.989**	**-0.879**
	0.45	-0.90	0.04	-0.74	-1.20	-0.58
F-stat	16.250	7.870	10.960	2.030	4.150	1.510
multiple R2	0.402	0.253	0.722	0.105	0.210	0.080
Adjusted R2	**0.374**	**0.217**	**0.694**	**0.047**	**0.153**	**0.021**

Table 8

Ownership Structure and Stock Price Reactions

This table reports how pyramid group firm's stock prices react to different return indices. The first set of indices is constructed based on industry classification, while the second set is based on pyramid groups. OLS regressions are used to estimate price sensitivities to each respective index. GRP (β_2) measure a pyramid group firm's sensitivity to the stock movement of it's group members locating at equal or lower tiers in its group. Sensitivity difference, DIFF, is the difference between β_1 and β_2. GRP1 And DIFF1 are based on equal-weighted indexes, while GRP2 and DIFF2 are value-weighted.

$$r_{j.i.t} = \beta_0 + \beta_1 INDEX_{j.i.t} + \beta_2 PINDEX_{j.g.t} + \mu_{j.i.t}$$

$$DIFF_i = \beta_1 - \beta_2$$

$$INDEX1_{j.i.t} = \frac{\sum_i wret - wret_j}{nr - 1} \qquad IINDEX2_{j.i.t} = \frac{\sum_i wrmc - wrmc_j}{\sum_i wmc - wmc_j}$$

$$PINDEX1_{j.i.t} = \frac{\sum_i wret - wret_j}{nr - 1} \qquad PINDEX2_{j.i.t} = \frac{\sum_i wrmc - wrmc_j}{\sum_i wmc - wmc_j}$$

	N	Mean	Std Err	t-value		N	Mean	Std Err	t-value
	All Pyramid Groups					**Family-controlled**			
GRP1	58	0.095	0.138	0.69	**GRP1**	46	0.166	0.162	1.03
GRP2	58	0.082	0.139	0.59	**GRP2**	46	0.187	0.131	1.43
DIFF1	58	-0.057	0.162	-0.35	**DIFF1**	46	-0.023	0.189	-0.12
DIFF2	58	-0.071	0.159	-0.43	**DIFF2**	46	-0.043	0.144	-0.30
	Government-controlled					**Edper Bronfman**			
GRP1	7	0.193	0.100	1.94	**GRP1**	12	0.391	0.249	1.57
GRP2	7	0.166	0.142	1.17	**GRP2**	12	0.119	0.077	1.54
DIFF1	7	-0.152	0.139	-1.09	**DIFF1**	12	-0.361	0.233	-1.55
DIFF2	7	-0.069	0.193	-0.36	**DIFF2**	12	0.047	0.093	0.50

Appendix 1

Industry Classification

I start with 72 industry segment indicators (INDSGN) from *ROB database*. This system is based on TSE300 sector classification, with 14 sector groups included in *TSE300 composite index* in 1994. The 72 *ROB* segments are consolidated into 16 industry groups. The first 14 groups are the same as the ones of *TSE300 index*, and all the companies that I cannot reasonably allocate into TSE sector groups are put into 2 additional industry groups. The 16 groups are used to control for industry fixed effects.

TABLE 2 ROB 1994 INDUSTRY CLASSIFICATION

rob indsgn	ROB industry segment	TSE industry (TSE REVIEW 1994)	INDS CODE
1.1	integrated mines	METAL & MINERALS	1
1.2	metal mines		
1.3	asbestos mines		
1.4	non-base metals		
1.6	other mines		
2.0	precious metals	GOLD & PRECIOUS METAL	2
3.1	integrated oils	OIL & GAS	3
3.2	oil and gas producers		
3.3	oil and gas field services		
4.1	east coast forestry	PAPER & FORESTRY	4
4.2	west coast forestry		
5.1	food processing	CONSUMER PRODUCTS	5
5.2	tobacco		
5.3.1	breweries		
5.3.2	distilleries		
5.3.3	wineries		
5.5.1	home furnishing	CONSUMER GOODS & SERVICES	
5.5.2	clothing and textiles		
5.5.3	leisure goods and services		
5.5.4	appliances		
5.7	biotech & pharmaceuticals		
5.8	misc. consumer products		
6.1	steel	INDUSTRIAL PRODUCTS	6
6.2	metal fabricators		
6.3	machinary		
6.4	transportation equipment		
6.5	electrical & electronics		
6.6	cement and concrete		
6.7	chemicals		
6.8	packaging and container		
6.9.1	paper product	BUSINESS SERVICES	
6.9.2	business forms		
5.6	automative	according to TSE, this is 6.11	
15.2	computer software	according to TSE, this is 6.10	

TABLE 2 ROB 1994 INDUSTRY CLASSIFICATION

7.1	developer	REAL ESTATE	7
7.2	property mgmt & investment		
7.3	contractor	(real estate contractor)	
8.0	transportation (airline)	TRANSPORTATION & ENVIRONMENTAL SERVICES	8
8.1	enviornmental service		
9.1	oil pipelines	PIPELINES	9
9.2	gas pipelines		
10.1	gas utilities	UTILITIES	10
10.2	electrical utilities		
10.3	telephone utilities		
11.1	broadcasting	COMMUNICATION & MEDIA	11
11.2	cable		
16.1	entertainment services	according to TSE, this is also 11.2	
11.3	publishing & printing		
11.4	telecommunications		
12.1	wholesale distributors	MERCHANDISING	12
12.2	food stores		
12.3	department stores		
12.4	clothing stores		
12.5	special stores		
12.6	food services		
12.7	lodging		
13.1	banks	FINANCE & INSURANCE	13
13.2	trust, savings and loan		
13.3	investment companies and funds		
13.5.1	insurance-property & casuality		
13.5.2	insurance-life		
13.6	finance and leasing		
13.7	investment houses		
13.8	credit unions		
14.0	mgmt and diversified	CONGLOMERATE	14

The Following INDSGNs are NOT in TSE300 Sector Classification

15.3	consulting	OTHER SERVICES	15
15.4	chartered accountants		
16.1	entertainment services		
16.2	?		
16.3	other services		
20.0	agriculture	AGRICULTURE & FISHING	99
20.1	?		
21.1	fishing		

Appendix 2

Indices of Regulation of Securities Markets

This table classifies countries by region and legal origin. It shows the securities law variables for each country, as reported by La Porta *et al.* (2003).

Region	Country / Economy	Legal Origin	Disclosure Requirements	Burden of Proof	Private Enforcement	Average		Supervisor Attributes	Invetigative Powers	Orders	Criminal Sanctions	Public Enforcement	Average	
	Canada	English	0.92	1.00	0.96	0.96		0.63	1.00	1.00	0.83	0.86	0.86	
	United States	English	1.00	1.00	1.00	1.00	0.98	1.00	1.00	1.00	0.50	0.88	0.88	0.87
Western Europe	Ireland	English	0.67	0.55	0.61	0.61		0.25	0.00	0.00	0.83	0.27	0.27	
	United Kingdom	English	0.83	0.66	0.75	0.75	0.68	0.25	1.00	1.00	0.42	0.67	0.67	0.47
	Belgium	French	0.42	0.44	0.43	0.43		0.00	0.25	0.00	0.50	0.19	0.19	
	France	French	0.75	0.22	0.49	0.49		0.88	1.00	1.00	0.33	0.80	0.80	
	Italy	French	0.67	0.22	0.44	0.44		0.75	0.25	0.00	0.50	0.38	0.38	
	Portugal	French	0.42	0.66	0.54	0.54		0.75	1.00	0.25	0.00	0.50	0.50	
	Spain	French	0.50	0.66	0.58	0.58	0.50	0.50	0.50	0.00	0.50	0.38	0.38	0.45
	Austria	German	0.25	0.11	0.18	0.18		0.25	0.00	0.00	0.50	0.19	0.19	
	Germany	German	0.42	0.00	0.21	0.21		0.25	0.25	0.00	0.50	0.25	0.25	
	Switzerland	German	0.67	0.44	0.55	0.55	0.31	0.50	0.00	0.00	0.33	0.21	0.21	0.22
	Finland	Scandinavian	0.50	0.66	0.58	0.58		0.50	0.25	0.17	0.50	0.35	0.35	
	Norway	Scandinavian	0.58	0.44	0.51	0.51		0.00	0.25	0.33	1.00	0.40	0.40	
	Sweden	Scandinavian	0.58	0.33	0.46	0.46	0.52	0.25	0.25	0.67	0.58	0.44	0.44	0.40
							0.49							0.39
Eastern Asia														
	Hong Kong	English	0.92	0.66	0.79	0.79		0.50	1.00	1.00	1.00	0.88	0.88	
	Malaysia	English	0.92	0.66	0.79	0.79		0.38	1.00	1.00	1.00	0.84	0.84	
	Singapore	English	1.00	0.66	0.83	0.83		0.50	1.00	1.00	1.00	0.88	0.88	
	Thailand	English	0.92	0.33	0.63	0.63	0.76	0.75	1.00	0.33	0.58	0.67	0.67	0.82
	Indonesia	French	0.50	0.66	0.58	0.58		0.50	1.00	0.25	0.50	0.56	0.56	
	Philippines	French	0.83	1.00	0.92	0.92	0.75	0.75	1.00	1.00	0.50	0.81	0.81	0.69
	Japan	German	0.75	0.66	0.71	0.71		0.00	0.00	0.00	0.00	0.00	0.00	
	South Korea	German	0.75	0.66	0.71	0.71		0.25	0.50	0.08	0.33	0.29	0.29	
	Taiwan	German	0.75	0.66	0.71	0.71	0.71	0.50	0.25	0.17	0.83	0.44	0.44	0.24
							0.74							0.60

Source: Table II, 'What Works in Securities laws?' by Rafael La Porta, Florencio Lopez de Silances, and Andrei Shleifer. 2003